

YAMAHA

SR125'97

3MW-AE1

SERVICE MANUAL

EB000000

SR125

SERVICE MANUAL

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1st Edition, September 1996

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NOTICE

This manual was produced by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to include all the knowledge of a mechanic in one manual, so it is assumed that anyone who uses this book to perform maintenance and repairs on Yamaha motorcycle has a basic understanding of the mechanical ideas and the procedures of motorcycle repair. Repairs attempted by anyone without this knowledge are likely to render the motorcycle unsafe and unfit for use.

Yamaha Motor Company, Ltd., is continually striving to improve all its models. Modifications and significant changes in specifications or procedures will be forwarded to all authorized Yamaha dealers and will appear in future additions of this manual where applicable.

NOTE:

Designs and specifications are subject to change without notice.

IMPORTANT INFORMATION

Particularly important information is distinguished in this manual by the following notations.



The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!



Failure to follow WARNING instructions could result in severe injury or death to the motorcycle operator, a bystander or a person inspecting or repairing the motorcycle.

CAUTION:

A CAUTION indicates special precautions that must be taken to avoid damage to the motorcycle.

NOTE:

A NOTE provides key information to make procedures easier or clearer.

HOW TO USE THIS MANUAL

MANUAL ORGANIZATION

This manual consists of chapters for the main categories of subjects. (See “Illustrated symbols”)

1st title ①: This is the title of the chapter with its symbol on the upper right corner of each page.

2nd title ②: This title indicates the section of the chapter and only appears on the first page of each section. It is located in the upper left corner of the page.

3rd title ③: This title indicates a sub-section that is followed by step-by-step procedures accompanied by corresponding illustrations.

EXPLODED DIAGRAMS

To help identify parts and clarify procedure steps, there are exploded diagrams at start of each removal and disassembly section.

1. An easy-to-see exploded diagram ④ is provided for disassembly and assembly jobs.
2. Numbers ⑤ are given in the order of jobs in the exploded diagram. A number that is enclosed by a circle indicates a disassembly step.
3. An explanation of jobs and notes is presented in an easy-to-read way by the use of symbol marks ⑥. The meanings of the symbol marks are given on the next page.
4. A job instruction chart ⑦ accompanies the exploded diagram, providing the order of jobs, names of parts, notes in jobs, etc.
5. For jobs requiring more information, the step-by-step format supplements ⑧ are given in addition to the exploded diagram and the job instruction chart.

② CLUTCH ① ENG

④

⑥

⑦

Order	Job name/Part name	Q'ty	Remarks
Clutch removal			
1	Sprocket cover	4	Remove the parts in order. Refer to "ENGINE REMOVAL" section.
2	Clutch springs	1	
3	Pressure plate	1	Refer to "CLUTCH INSTALLATION" section.
4	Friction plates	4	
5	Clutch plates	3	
6	Nut/Lock washer	1/1	Refer to "CLUTCH REMOVAL/INSTALLATION" section.
7	Clutch boss	1	
8	Plate washer	1	
9	Primary driven gear	1	Refer to "CLUTCH INSTALLATION" section.
10	Ball	1	
11	Push rod #2	1	
	Push lever screw/Gasket	1/1	

③ CLUTCH ENG

CLUTCH REMOVAL

1. Remove:

- Nut ① (clutch boss)
- Lock washer ②
- Clutch boss ③

Straighten the lock washer tab ②.

NOTE:

Loosen the clutch boss nut ① while holding the clutch boss with a clutch holding tool ④.

Clutch holding tool:
90890-04086

CLUTCH INSPECTION

1. Inspect:

- Friction plates

Damage/wear → Replace the friction plates as a set.

2. Measure:

- Friction plate thickness

Out of specification → Replace the friction plates as a set.

Measure at four places.

Thickness (friction plate):
2.9 ~ 3.1 mm
<Limit: 2.7 mm>

3. Inspect:

- Clutch plates

Damage → Replace the clutch plates as a set.

4. Measure:

- Clutch plate warpage

Out of specification → Replace the clutch plates as a set.

Use a surface plate and a feeler gauge ①.

Warp limit (clutch plate):
Less than 0.05 mm







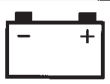
















5. Inspect:

- Clutch springs

Damage → Replace the clutch springs as a set.

4-27

4-29

① GEN INFO 	② SPEC 	
③ INSP ADJ 	④ ENG 	
⑤ CARB 	⑥ CHAS 	
⑦ ELEC 	⑧ TRBL SHTG 	
⑨ 	⑩ 	
⑪ 	⑫ 	
⑬ 	⑭ 	
⑮ 	⑯ 	
⑰ 	⑱ 	⑲ 
⑳ 	㉑ 	㉒ 
㉓ 	㉔ New	

EB003000

ILLUSTRATED SYMBOLS

Illustrated symbols ① to ⑨ are designed as thumb tabs to indicate the chapter's number and content.

- ① General information
- ② Specifications
- ③ Periodic inspection and adjustment
- ④ Engine
- ⑤ Carburation
- ⑥ Chassis
- ⑦ Electrical
- ⑧ Troubleshooting

Illustrated symbols ⑨ to ⑯ are used to identify the specifications appearing in the text.

- ⑨ Possible to maintain with engine mounted
- ⑩ Filling fluid
- ⑪ Lubricant
- ⑫ Special tool
- ⑬ Tightening
- ⑭ Wear limit, clearance
- ⑮ Engine speed
- ⑯ Ω , V, A








Illustrated symbols ⑰ to ㉒ in the exploded diagrams indicate the types of lubricants and lubrication points.

- ⑰ Apply engine oil
- ⑱ Apply gear oil
- ⑲ Apply molybdenum disulfide oil
- ㉑ Apply wheel bearing grease
- ㉒ Apply lightweight lithium-soap baes grease
- ㉓ Apply molybdenum disulfide grease

Illustrated symbols ㉓ to ㉔ in the exploded diagrams indicate the where to apply locking agent ㉓ and when to install new parts ㉔.

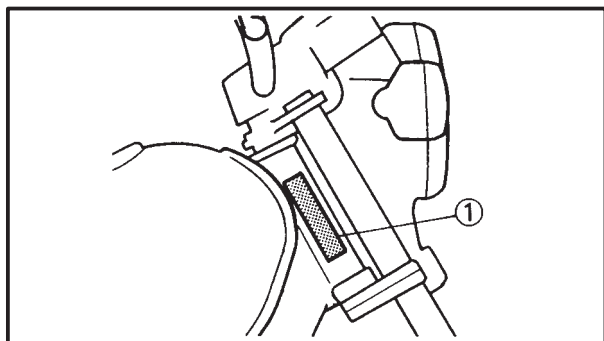
- ㉓ Apply locking agent (LOCTITE®)
- ㉔ Use new one

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CHAPTER 1. GENERAL INFORMATION

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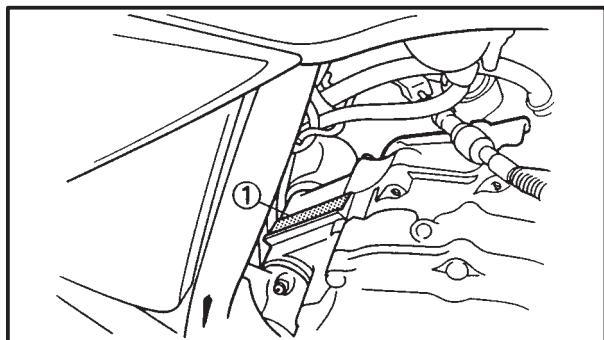
YP100000

GENERAL INFORMATION MOTORCYCLE IDENTIFICATION

SR100020

FRAME SERIAL NUMBER

The frame serial number ① is stamped into the right side of the frame.



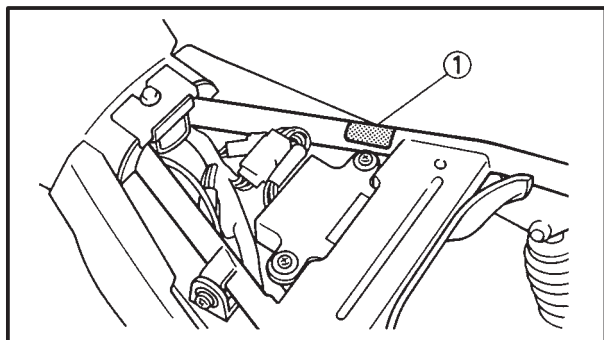
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ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the crankcase.

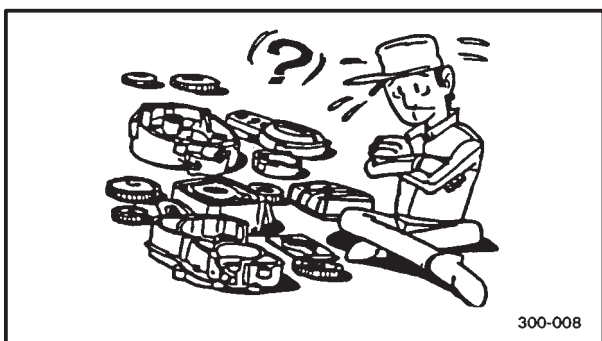
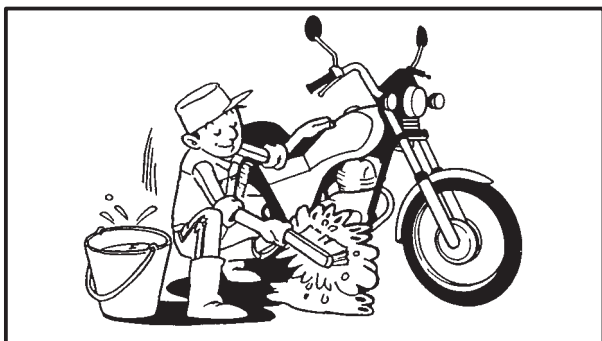
NOTE:

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MODEL LABEL

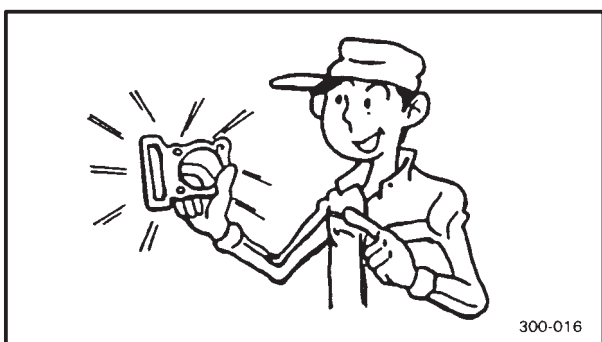
The model label ① is affixed under the seat. This information will be needed to order spare parts.



EB101000

IMPORTANT INFORMATION PREPARATION FOR REMOVAL PROCE- DURES

1. Remove all dirt, mud, dust and foreign material before removal and disassembly.
2. Use proper tools and cleaning equipment.
3. Refer to the "SPECIAL TOOLS" section.
4. When disassembling the machine, always keep mated parts together. This includes gears, cylinders, pistons and other parts that have been "mated" through normal wear. Mated parts must always be reused or replaced as an assembly.
5. During machine disassembly, clean all parts and place them in trays in the order of disassembly. This will speed up assembly and allow for the correct installation of all parts.
6. Keep all parts away from any source of fire.



NB101010

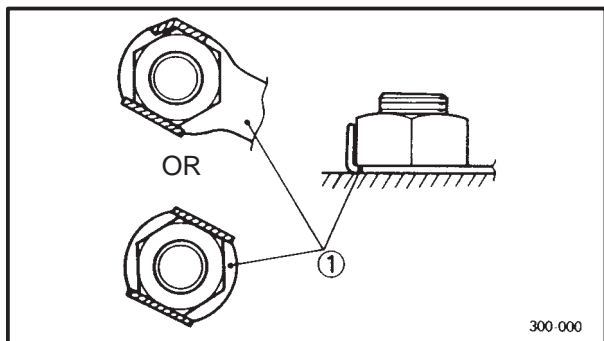
REPLACEMENT PARTS

1. Use only genuine Yamaha parts for all replacements. Use oil and grease recommended by Yamaha for all lubrication jobs. Other brands may be similar in function and appearance, but inferior in quality.

EB101020

GASKETS, OIL SEALS AND O-RINGS

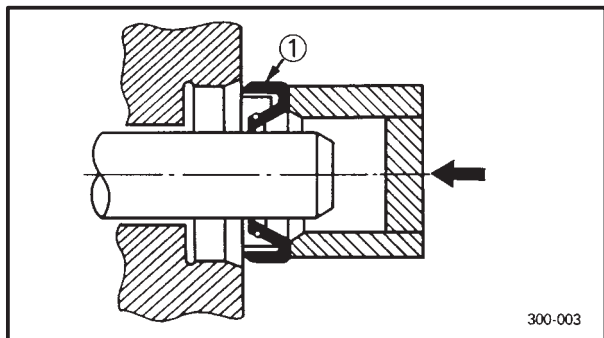
1. Replace all gaskets, seals and O-rings when overhauling the engine. All gasket surfaces, oil seal lips and O-rings must be cleaned.
2. Properly oil all mating parts and bearings during reassembly. Apply grease to the oil seal lips.



EB101030

LOCK WASHERS/PLATES AND COTTER PINS

1. Replace all lock washers/plates and cotter pins after removal. Bend lock tabs along the bolt or nut flats after the bolt or nut has been tightened to specification.

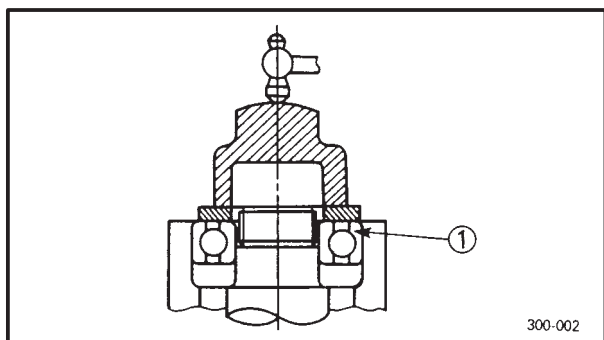


EB101040

BEARINGS AND OIL SEALS

Install bearings and oil seals so that the manufacturer's marks or numbers are visible. When installing oil seals, apply a light coating of lightweight lithium base grease to the seal lips. Oil bearings liberally when installing, if appropriate.

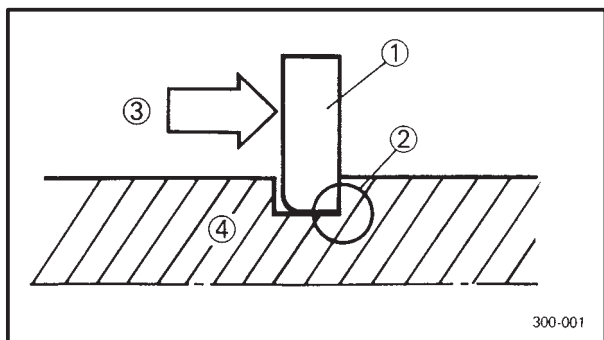
- ① Oil seal



CAUTION:

Do not use compressed air to spin the bearings dry. This will damage the bearing surfaces.

- ① Bearing



EB101050

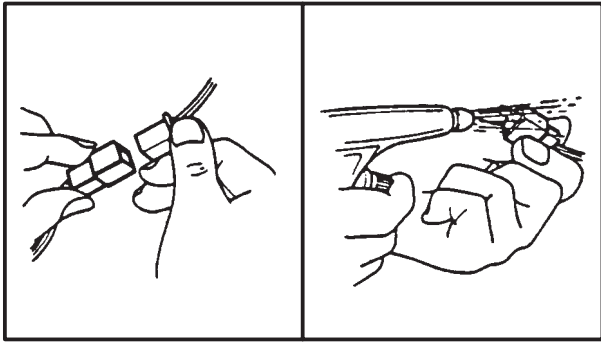
CIRCLIPS

1. Check all circlips carefully before reassembly. Always replace piston pin clips after one use. Replace distorted circlips. When installing a circlip ①, make sure that the sharp-edged corner ② is positioned opposite the thrust ③ it receives. See sectional view.

- ④ Shaft

CHECKING OF CONNECTIONS

**GEN
INFO**

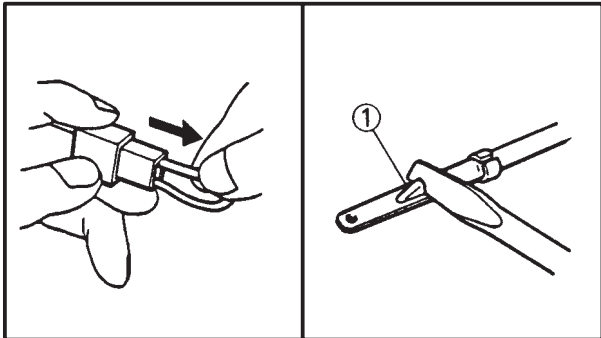


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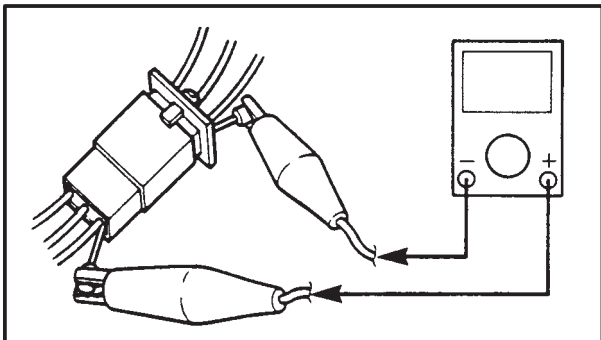
CHECKING OF CONNECTIONS

Dealing with stains, rust, moisture, etc. on the connector.

1. Disconnect:
 - *Connector
2. Dry each terminal with an air blower.



3. Connect and disconnect the connector two or three.
4. Pull the lead to check that it will not come off.
5. If the terminal comes off, bend up the pin ① and reinsert the terminal into the connector.



6. Connect:
 - *Connector

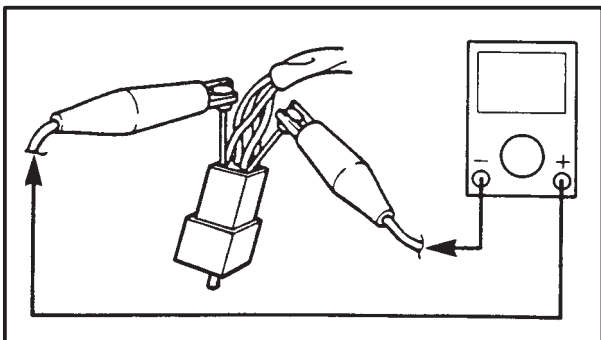
NOTE:

The two connectors "click" together.

7. Check for continuity with a tester.

NOTE:

- *If there is no continuity, clean the terminals.
- *Be sure to perform the steps 1 to 7 listed above when checking the wireharness.
- *For a field remedy, use a contact revitalizer available on the market.
- *Use the tester on the connector as shown.



HOW TO USE THE CONVERSION TABLE

**GEN
INFO**



EB201000

HOW TO USE THE CONVERSION TABLE

All specification data in this manual are listed in SI and METRIC UNITS.

Use this table to convert METRIC unit data to IMPERIAL unit data.

Ex.

METRIC	MULTIPLIER	IMP
** mm	× 0.03937	= ** in
2 mm	× 0.03937	= 0.08 in

CONVERSION TABLE

METRIC TO IMP			
	Known	Multiplier	Result
Torque	m>kg	7.233	ft>lb
	m>kg	86.794	in>lb
	cm>kg	0.0723	ft>lb
	cm>kg	0.8679	in>lb
Weight	kg	2.205	lb
	g	0.03527	oz
Distance	km/hr	0.6214	mph
	km	0.6214	mi
	m	3.281	ft
	m	1.094	yd
	cm	0.3937	in
	mm	0.03937	in
Volume/ Capacity	cc (cm ³)	0.03527	oz (IMP liq.)
	cc (cm ³)	0.06102	cu>n
	lit (liter)	0.8799	qt (IMP liq.)
	lit (liter)	0.2199	gal (IMP liq.)
Miscellaneous	kg/mm	55.997	lb/in
	kg/cm ²	14.2234	psi (lb/in ²)
	Centigrade	9/5 (°C) + 32	Fahrenheit (°F)



EB102000

SPECIAL TOOLS

The following special tools are necessary for complete and accurate tune-up and assembly. Use only the appropriate special tools; this will help prevent damage caused by the use of inappropriate tools or improvised techniques.

When placing an order, refer to the list provided below to avoid any mistakes.

Tool No.	Tool name/Usage	Illustration
90890-01080 -04052	Rotor puller Attachment This tool is used when removing or installing the meter gear bush.	
90890-01083 -01084	Rocker arm shaft puller bolt Weight These tools are used when removing or installing the rocker arm shafts.	
90890-01268	Ringnut wrench This tool is used to loosen and tighten the exhaust and steering ringnut.	
90890-01311	Valve adjusting tool This tool is necessary for adjusting valve clearance.	
90890-01312	Fuel level gauge This gauge is used to measure the fuel level in the float chamber.	
90890-01367 -01400	Fork seal driver weight Fork seal driver attachment (ø30 mm) This tool is used when installing the fork seal.	
90890-01403	Ring nut wrench This tool is used to loosen and tighten the steering ring nut.	
90890-01701	Sheave holder This tool is used for holding the secondary sheave.	
90890-01996	Cylinder cup installer set This tool is used for installing the cylinder cup to the master cylinder piston.	

SPECIAL TOOLS

**GEN
INFO**

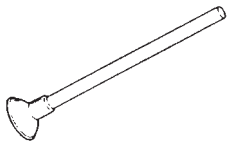
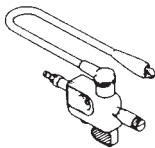
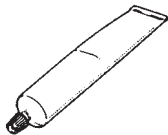


Tool No.	Tool name/Usage	Illustration
90890-03079	Thickness gauge This tool is used to measure the valve clearance.	
90890-03081 -04082	Compression gauge Adaptor These tools are used to measure the engine compression.	
90890-03112	Pocket tester These instruments are invaluable for checking the electrical system.	
90890-03113	Engine tachometer This tool is needed for detecting engine rpm.	
90890-03141	Timing light This tool is necessary for checking ignition timing.	
90890-04019 -04108	Valve spring compressor Attachment These tools are used when removing or installing the valve and the valve spring.	
90890-04064	Valve guide remover 6 mm This tool is used to remove the valve guide.	
90890-04065	Valve guide reamer 6 mm This tool is used to rebores the valve guide.	
90890-04066	Valve guide installer 6 mm This tool is needed to install the valve guides properly.	
90890-04086	Clutch holding tool This tool is used for holding the Clutch Boss.	

SPECIAL TOOLS

**GEN
INFO**



Tool No.	Tool name/Usage	Illustration
90890-04101	<p>Valve lapper</p> <p>This tool is used for removing and installing the lifter and for lapping the valve.</p>	
90890-06754	<p>Ignition checker</p> <p>This instrument is necessary for checking the ignition system components.</p>	
90890-85505	<p>Yamaha bond No.1215</p> <p>This sealant (bond) is used for crankcase mating surface, etc.</p>	

CHAPTER 2. SPECIFICATIONS

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SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	SR125
Model code:	3MW6
Dimensions:	
Overall length	1,915 mm
Overall width	775 mm
Overall height	1,080 mm
Seat height	745 mm
Wheelbase	1,280 mm
Minimum ground clearance	155 mm
Minimum turning radius	2,100 mm
Basic weight:	
With oil and full fuel tank	113 kg
Engine:	
Engine type	Air-cooled 4-stroke, SOHC
Cylinder arrangement	Forward-inclined single cylinder
Displacement	0.124 L (124 cm ³)
Bore × stroke	57.0 × 48.8 mm
Compression ratio	10.0 : 1
Compression pressure (STD)	1,200 kPa (12.0 kg/cm ² , 12.0 bar) at 1,000 r/min
Starting system	Electric starter
Lubrication system:	Wet sump
Oil type or grade:	
Engine oil	API "SE" or higher grade
<p>The chart shows temperature ranges in both Celsius (°C) and Fahrenheit (°F) for four oil grades. The top scale is in °C (-20 to 40) and the bottom scale is in °F (-4 to 104). Arrows indicate the recommended temperature range for each grade: 10W/30 (approx. -10°C to 30°C), 10W/40 (approx. -10°C to 40°C), 20W/40 (approx. 0°C to 40°C), and 20W/50 (approx. 0°C to 40°C).</p>	
Periodic oil change	1.0 L
With oil filter replacement	1.1 L
Total amount	1.3 L
Air filter:	Wet type element
Fuel:	
Type	Regular unleaded gasoline
Fuel tank capacity	10.0 L
Fuel reserve capacity	1.6 L

GENERAL SPECIFICATIONS

SPEC



Model	SR125
Carburetor: Type/quantity Manufacturer	Y24P/1 TEIKEI
Spark plug: Type Manufacturer Spark plug gap	DR8EA NGK 0.6 ~ 0.7 mm
Clutch type:	Wet, multiple-disc
Transmission: Primary reduction system Primary reduction ratio Secondary reduction system Secondary reduction ratio Transmission type Operation Gear ratio 1st 2nd 3rd 4th 5th	Spur gear 73/22 (3.318) Chain drive 49/14 (3.500) Constant mesh 5 speed Left foot operation 36/16 (2.250) 31/21 (1.476) 27/24 (1.125) 25/27 (0.926) 23/29 (0.793)
Chassis: Frame type Caster angle Trail	Diamond 26.75* 90 mm
Tire: Type Size front rear Manufacture front rear Type front rear	Tube type 3.00-17 45P 3.50-16 52P INOUE INOUE 8F 8RA
Tire pressure (cold tire): Maximum load-except motorcycle Loading condition A * front rear Loading condition B * front rear	164 kg 0 ~ 90 kg 175 kPa (1.75 kg/cm ² , 1.75 bar) 200 kPa (2.0 kg/cm ² , 2.0 bar) 90 ~ 205 kg 175 kPa (1.75 kg/cm ² , 1.75 bar) 225 kPa (2.25 kg/cm ² , 2.25 bar)

*Load is the total weight of cargo, rider, passenger, and accessories.

GENERAL SPECIFICATIONS

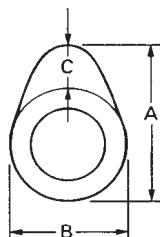

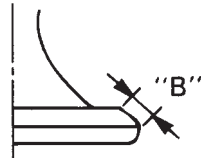
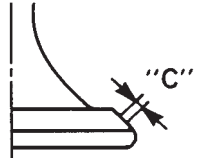
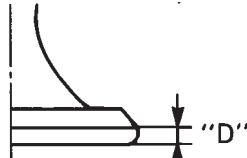
SPEC



Model	SR125
Brake: Front brake type operation Rear brake type operation	Single disc brake Right hand operation Drum brake Right foot operation
Suspension: Front suspension Rear suspension	Telescopic fork Swingarm
Shock absorber: Front shock absorber Rear shock absorber	Coil spring/Oil damper Coil spring/Oil damper
Wheel travel: Front wheel travel Rear wheel travel	120 mm 78 mm
Electrical: Ignition system Generator system Battery type Battery capacity	C.D.I. C.D.I. magneto 12N 7-3B 12 V 7 AH
Headlight type:	Bulb type
Bulb wattage × quantity: Headlight Auxiliary light Tail/brake light Flasher light Meter light High beam indicator Neutral indicator TURN indicator	12 V 36 W/36 W × 1 12 V 4 W × 1 12 V 5 W/21 W × 1 12 V 21 W × 4 12 V 3.4 W × 1 12 V 3.4 W × 1 12 V 3.4 W × 1 12 V 3.4 W × 2



MAINTENANCE SPECIFICATIONS ENGINE

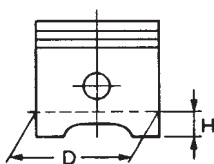
Item	Standard	Limit
Cylinder head: Warp limit	...	0.03 mm
Cylinder: Bore size	57.00 ~ 57.02 mm	57.1 mm
Taper limit	...	0.05 mm
Out of round limit	...	0.01 mm
Camshaft: Cam dimensions Intake "A" "B" "C" Exhaust "A" "B" "C" Camshaft runout limit	 36.537 ~ 36.637 mm 30.131 ~ 30.231 mm 6.59 mm 36.577 ~ 36.677 mm 30.214 ~ 30.314 mm 6.63 mm ...	 36.45 mm 30.05 mm ... 36.49 mm 30.13 mm ... 0.03 mm
Cam chain: Cam chain type/No. of links Cam chain adjustment	DID 25SH/104 ENDLESS Manual
Rocker arm/rocker armshaft: Rocker arm inside diameter Rocker shaft outside diameter Rocker arm-to-rocker armshaft clearance	 12.000 ~ 12.018 mm 11.985 ~ 11.991 mm 0.009 ~ 0.033 mm	 12.036 mm 11.950 mm ...
Valve, valve seat, valve guide: Valve clearance (cold) Valve dimensions "A" head diameter "B" face width "C" seat width "D" margin thickness Stem outside diameter	 IN 0.05 ~ 0.09 mm EX 0.11 ~ 0.15 mm  Head Dia.  Face Width  Seat Width  Margin Thickness IN 28.9 ~ 29.1 mm EX 23.9 ~ 24.1 mm IN 2.4 ~ 2.8 mm EX 2.4 ~ 2.8 mm IN 0.9 ~ 1.1 mm EX 0.9 ~ 1.1 mm IN 0.8 ~ 1.2 mm EX 0.8 ~ 1.2 mm IN 5.975 ~ 5.990 mm EX 5.960 ~ 5.975 mm	 5.955 mm 5.940 mm

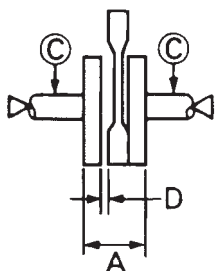
MAINTENANCE SPECIFICATIONS

SPEC




Item			Standard	Limit
Guide inside diameter	IN		6.000 ~ 6.012 mm	6.042 mm
	EX		6.000 ~ 6.012 mm	6.042 mm
Stem-to-guide clearance	IN		0.010 ~ 0.037 mm	0.08 mm
	EX		0.025 ~ 0.052 mm	0.10 mm
Stem runout limit			...	0.03 mm
Valve seat width	IN		0.9 ~ 1.1 mm	1.6 mm
	EX		0.9 ~ 1.1 mm	1.6 mm
Valve spring:				
Free length	(inner)	IN/EX	35.5 mm	33.5 mm
	(outer)	IN/EX	37.2 mm	35.2 mm
Set length (valve closed)	(inner)	IN/EX	22.5 mm	...
	(outer)	IN/EX	24.0 mm	...
Compressed pressure	(inner)	IN/EX	26.7 ~ 30.7 kg	...
	(outer)	IN/EX	52.4 ~ 40.2 kg	...
Tilt limit	(inner)	IN/EX	...	2.5°/1.5 mm
Tilt limit	(outer)	IN/EX	...	2.5°/1.5 mm
Direction of winding	(inner)	IN/EX	Clockwise	...
	(outer)	IN/EX	Counterclockwise	...
Piston:				
Piston to cylinder clearance			0.025 ~ 0.045 mm	...
Piston size "D"			56.960 ~ 56.975 mm	...
Piston over size (1st)			57.25 mm	...
Piston over size (2nd)			57.50 mm	...
Measuring point "H"			7.0 mm	...
Piston off-set			0.5 mm	...
Piston off-set direction			IN side	...
Piston pin bore inside diameter			15.002 ~ 15.013 mm	15.045 mm
Piston pin outside diameter			14.978 ~ 14.992 mm	14.975 mm
Piston rings:				
Top ring:				
Type			Plane	...
Dimensions (B × T)			2.3 × 2.5 mm	...
End gap (installed)			0.15 ~ 0.35 mm	0.60 mm
Side clearance (installed)			0.03 ~ 0.07 mm	0.15 mm
2nd ring:				
Type			Plane	...
Dimensions (B × T)			2.3 × 2.5 mm	...
End gap (installed)			0.15 ~ 0.35 mm	0.60 mm
Side clearance			0.02 ~ 0.06 mm	0.15 mm
Oil ring:				
Dimensions (B × T)			2.5 × 2.8 mm	...
End gap (installed)			0.3 ~ 0.9 mm	...







TIGHTENING TORQUES ENGINE

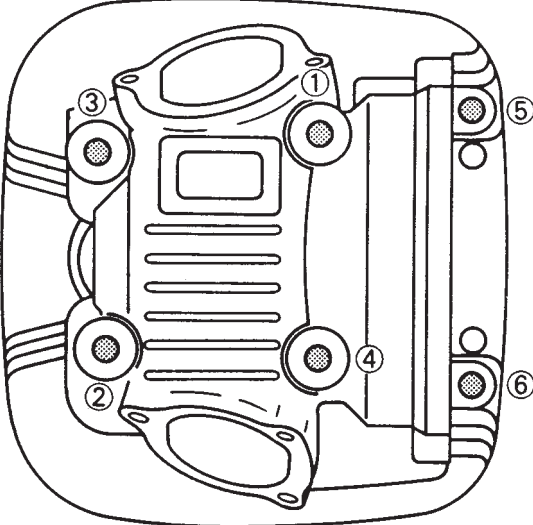
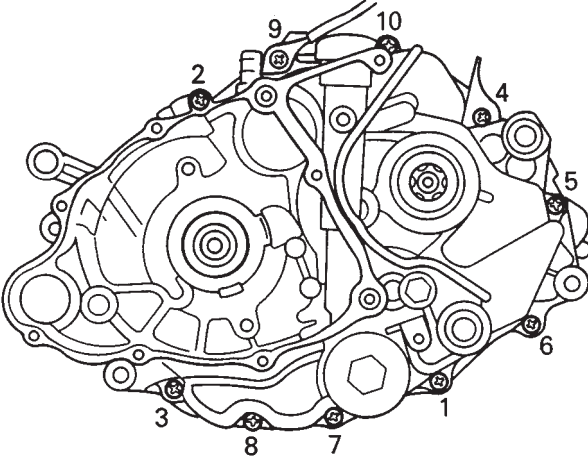
Part to be tightened	Part name	Thread size	Q'ty	Tightening torque		Remarks
				Nm	m•kg	
Cylinder head blind plug	Screw	M6	2	7	0.7	 Stake
Cylinder head and cylinder	Bolt	M8	4	22	2.2	
Cylinder head (Timing chain side)	Bolt	M8	2	20	2.0	
Cam sprocket cover	Screw	M6	2	7	0.7	
Valve cover	Bolt	M6	5	10	1.0	
Plate	Bolt	M6	2	8	0.8	
Spark plug	—	M12	1	18	1.8	
Cylinder	Bolt	M6	2	10	1.0	
Buffer boss	Nut	M14	1	50	5.0	
C.D.I. magneto	Bolt	M10	1	50	5.0	
Valve adjuster locknut	Nut	M6	2	14	1.4	
Cam sprocket	Bolt	M10	1	60	6.0	
Timing chain tensioner (Body)	Nut	M14	1	30	3.0	
(Cap)	Nut	M14	1	5	0.5	
Timing chain guide (intake)	Bolt	M6	2	8	0.8	
Oil pump	Screw	M6	1	7	0.7	
Oil pump and crankcase	Screw	M6	3	7	0.7	
Drain plug	Bolt	M35	1	43	4.3	
Oil filter cover	Screw	M6	2	7	0.7	
Drain bolt (oil filter)	Bolt	M6	1	10	1.0	
Carburetor joint and carburetor	Screw	M6	2	12	1.2	
Carburetor joint and cylinder	Screw	M5	1	2	0.2	
Carburetor joint and air filter	Screw	M5	1	4	0.4	
Air filter case	Screw	M5	2	4	0.4	
Air filter case and frame	Screw	M6	2	7	0.7	
Muffler and frame	Bolt	M8	2	20	2.0	
Exhaust pipe and cylinder	Bolt	M6	2	12	1.2	
Crankcase (left and right)	Screw	M6	13	7	0.7	
Crankcase cover (left)	Screw	M6	9	7	0.7	
Crankcase cover (left)	Screw	M4	1	2	0.2	
Crankcase cover (right)	Screw	M6	9	7	0.7	
Drive sprocket cover	Screw	M6	2	7	0.7	
Starter clutch	Bolt	M8	3	30	3.0	
Kick crank	Bolt	M32	1			
Primary drive gear	Nut	M14	1	50	5.0	
Clutch spring	Screw	M5	4	6	0.6	
Clutch boss	Nut	M14	1	70	7.0	
Push lever axle	Screw	M8	1	12	1.2	
Push lever adjuster	Nut	M6	1	8	0.8	

MAINTENANCE SPECIFICATIONS

SPEC



Part to be tightened	Part name	Thread size	Q'ty	Tightening torque		Remarks
				Nm	m•kg	
Drive sprocket	Bolt	M6	2	10	1.0	
Shift cam (Segment)	Screw	M6	1	12	1.2	
Shift pedal	Bolt	M6	1	8	0.8	
Pick up coil	Screw	M6	4	7	0.7	
Neutral switch	Screw	M10	1	20	2.0	
Stator coil	Screw	M4	6	3	0.3	
Starter motor	Screw	M6	1	7	0.7	

Item	Standard	Limit
Tightening sequence Cylinder head		
Crankcase		

MAINTENANCE SPECIFICATIONS

SPEC



CHASSIS

Item	Standard	Limit
Steering system:		
Steering bearing type	Ball bearing	...
No./size of steel balls (upper)	22 pcs. 0.1875 in	...
(lower)	19 pcs. 0.251 in	...
Front suspension:		
Front fork travel	120 mm	...
Fork spring free length	326.1 mm	321 mm
Fitting length	311.1 mm	...
Spring rate (K1)	3.6 N /mm (0.36 kg/mm)	...
(K2)	5.1 N/mm (0.51 kg/mm)	...
Stroke (K1)	0 ~ 85 mm	...
(K2)	85 ~ 120 mm	...
Oil capacity	0.177 L (177 cm ³)	...
Oil level	135 mm	...
Oil grade	Fork oil 15 WT or equivalent	...
Inner tube vend limit	...	0.2 mm
Rear suspension:		
Shock absorber stroke	65 mm	...
Spring free length	178.5 mm	173 mm
Fitting length	198 mm	...
Spring rate (K1)	18.3 N/mm (1.83 kg/mm)	...
(K2)	21.6 N/mm (2.16 kg/mm)	...
Stroke (K1)	0 ~ 30 mm	...
(K2)	30 ~ 65 mm	...
Front wheel:		
Type	Spoke wheel	...
Rim size	17 × 1.60	...
Rim material	Steel	...
Rim runout limit radial	...	2 mm
lateral	...	2 mm
Rear wheel:		
Type	Spoke wheel	...
Rim size	16 × 1.85	...
Rim material	Steel	...
Rim runout limit radial	...	2 mm
lateral	...	2 mm
Drive chain:		
Type/manufacturer	428HG/DAIDO	...
No. of links	120	...
Chain free play	25 ~ 35 mm	...

MAINTENANCE SPECIFICATIONS

SPEC




Item	Standard	Limit
Front brake:		
Type	Single disc	...
Disc outside diameter	267 mm	...
Disc thickness	4 mm	3.5 mm
Pad thickness (inner)	6.2 mm	0.8 mm
(outer)	6.2 mm	0.8 mm
Master cylinder inside diameter	12.7 mm	...
Caliper cylinder 1 inside diameter	30.16 mm	...
Caliper cylinder 2 inside diameter	25.4 mm	...
Brake fluid type	DOT#4 or DOT#3	...
Rear brake:		
Type	Leading, trailing	...
Drum inside diameter	110 mm	111 mm
Shoe thickness	4 mm	2 mm
Shoe spring free length	50.5 mm	...
Brake lever:		
Brake lever free play (at lever end)	2 ~ 5 mm	...
Brake pedal:		
Brake pedal free play	20 ~ 30 mm	...
Brake pedal position	0 mm	...
Clutch lever:		
Clutch lever free play (at lever end)	10 ~ 15 mm	...
Throttle cable free play	3 ~ 5 mm	...



TIGHTENING TORQUES

CHASSIS

Part to be tightened	Thread size	Tightening torque		Remarks
		Nm	m•kg	
Handle crown and front fork	M10	45	4.5	Refer to NOTE
Handle crown and steering shaft	M10	40	4.0	
Handlebar holder (under and upper)	M8	20	2.0	
Steering ring nut	M25	7	0.7	
Master cylinder and cap (front brake)	M4	2	0.2	
Handlebar under holder and nut	M10	40	4.0	
Master cylinder (front brake)	M6	9	0.9	
Brake hose union bolt (front brake)	M10	30	3.0	
Front flasher and stay	M12	4	0.4	
Steering shaft and front fork	M10	30	3.0	
Engine and front engine stay	M8	33	3.3	
Front engine stay and frame	M8	33	3.3	
Engine and top engine stay	M8	33	3.3	
Top engine stay and frame	M8	33	3.3	
Engine and engine bracket (frame)	M8	33	3.3	
Swingarm pivot shaft	M12	45	4.5	
Rear shock absorber and frame	M10	40	4.0	
Rear shock absorber and swingarm	M10	30	3.0	
Swingarm and tension bar	M8	20	2.0	
Tension bar and rear brake shoe plate	M8	20	2.0	
Grab bar and frame	M8	16	1.6	
Fuel tank an fuel cock	M6	7	0.7	
Rear flasher and stay	M12	4	0.4	
Sidestand (bolt)	M8	19	1.9	
(nut)	M8	16	1.6	
Rear footrest (left)	M10	45	1.5	
Front wheel axle	M14	59	5.9	
Rear wheel axle and nut	M14	65	6.5	
Brake caliper and front fork	M10	40	4.0	
Brake disc and front wheel	M8	23	2.3	
Driven sprocket and clutch hub	M10	40	4.0	
Brake caliper bleed screw	M7	6	0.6	
Meter gear and meter cable	M12	3	0.3	
Brake cam lever	M6	9	0.9	
Front wheel axle pinch bolt	M8	20	2.0	

NOTE:

1. When tighten the ring nut, should be steady the ball bearings and the steering shaft moving smoothly.
2. First, tighten the ring nut approximately 38 Nm (3.8 m•kg) by using the torque wrench, then loosen the ring nut one turn and retighten the ring nut to specification.



ELECTRICAL

Item	Standard	Limit
Ignition timing: Ignition timing (B.T.D.C.) Advanced timing Advanced type	9° at 1,300 r/min 29° at 5,500 r/min Electrical type
C.D.I.: Pickup coil resistance/color Source coil resistance/color C.D.I. unit model/manufacture	656 ~ 984 Ω at 20°C/ Red – White 624 ~ 936 Ω at 20°C/ Brown – Green 4WP/YAMAHA
Ignition coil: Model/manufacturer Minimum spark gap Primary winding resistance Secondary winding resistance	2JN/YAMAHA 6 mm 0.32 ~ 0.48 Ω at 20°C 5.68 ~ 8.52 kΩ at 20°C
Spark plug cap: Type Resistance	Resin type 10 kΩ
Charging system: Type Model/manufacturer Standard output Stator coil resistance/color	C.D.I. magneto 4WP/YAMAHA 14 V 9 A/5,000 r/min 0.48 ~ 0.72 Ω at 20°C/ White – White
Rectifier/regulator: Model/manufacturer Type (regulator) No load regulated voltage Capacity (rectifier) Withstand voltage	SH553D/SHINDENGEN Semi conductor-short circuit type 14.5 V 25 A 200 V
Battery: Specific gravity	1.280	...
Electric starter system: Type Starter motor: Model/manufacturer Output Armature coil resistance Brush overall length Brush spring pressure Commutator diameter Mica undercut (depth)	Constant mesh type SM-14/MITUBA 0.6 kW 0.0207 ~ 0.0253 Ω at 20°C 10 mm 5.30 ~ 6.47 N 28 mm 0.7 mm 3.5 mm ... 27 mm ...

MAINTENANCE SPECIFICATIONS

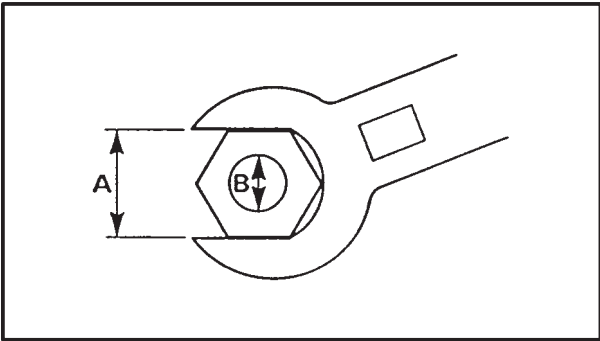
SPEC



Item	Standard	Limit
Starter relay:		
Model/manufacturer	MS5D-191/JIDECO	...
Amperage rating	100 A	...
Coil winding resistance	3.9 ~ 4.7 Ω at 20°C	...
Horn:		
Model/manufacturer	YF-12/NIKKO	...
Maximum amperage	2.5 A	...
Flasher relay:		
Type	Condenser type	...
Model/manufacturer	FR2204/MITUBA	...
Flasher frequency	85 cycle/min	...
Circuit breaker:		
Type	Fuse	...
Main	20 A \times 1 pcs.	...
Reserve	20 A \times 1 pcs.	...

GENERAL TORQUE SPECIFICATIONS

This chart specifies torque for standard fasteners with standard I.S.O. pitch threads. Torque specifications for special components or assemblies are included in the applicable sections of this book. To avoid warpage, tighten multi-fastener assemblies in a crisscross fashion, in progressive stages, until full torque is reached. Unless otherwise specified, torque specifications call for clean, dry threads. Components should be at room temperature.



A: Distance across flats
B: Outside thread diameter

A (Nut)	B (Bolt)	General torque specifications	
		Nm	m•kg
10 mm	6 mm	6	0.6
12 mm	8 mm	15	1.5
14 mm	10 mm	30	3.0
17 mm	12 mm	55	5.5
19 mm	14 mm	85	8.5
22 mm	16 mm	130	13.0

LUBRICATION POINT AND GRADE OF LUBRICANT

SPEC



LUBRICATION POINT AND GRADE OF LUBRICANT ENGINE

Lubrication Point	Symbol
Oil seal lips (all)	
Bearing retainer (all)	
Bolt (cylinder head)	
Crank pin	
Connecting rod (big end)	
Piston pin	
Piston/piston ring	
Buffer boss	
Valve stem/valve guide (IN, EX)	
Valve stem end (IN, EX)	
Rocker arm shaft	
Cam and bearing (camshaft)	
Rocker arm inner surface	
Crankcase mating surfaces	Yamaha bond No.1215
O-ring (all)	
Starter idle gear thrust surfaces	
Starter clutch (outer/roller)	
Starter wheel gear inner surface	
Push rod	
Primary driven gear inner surface	
Push lever axle	
Transmission gear inner surface	
Shift fork/guide bar	

LUBRICATION POINT AND GRADE OF LUBRICANT

SPEC

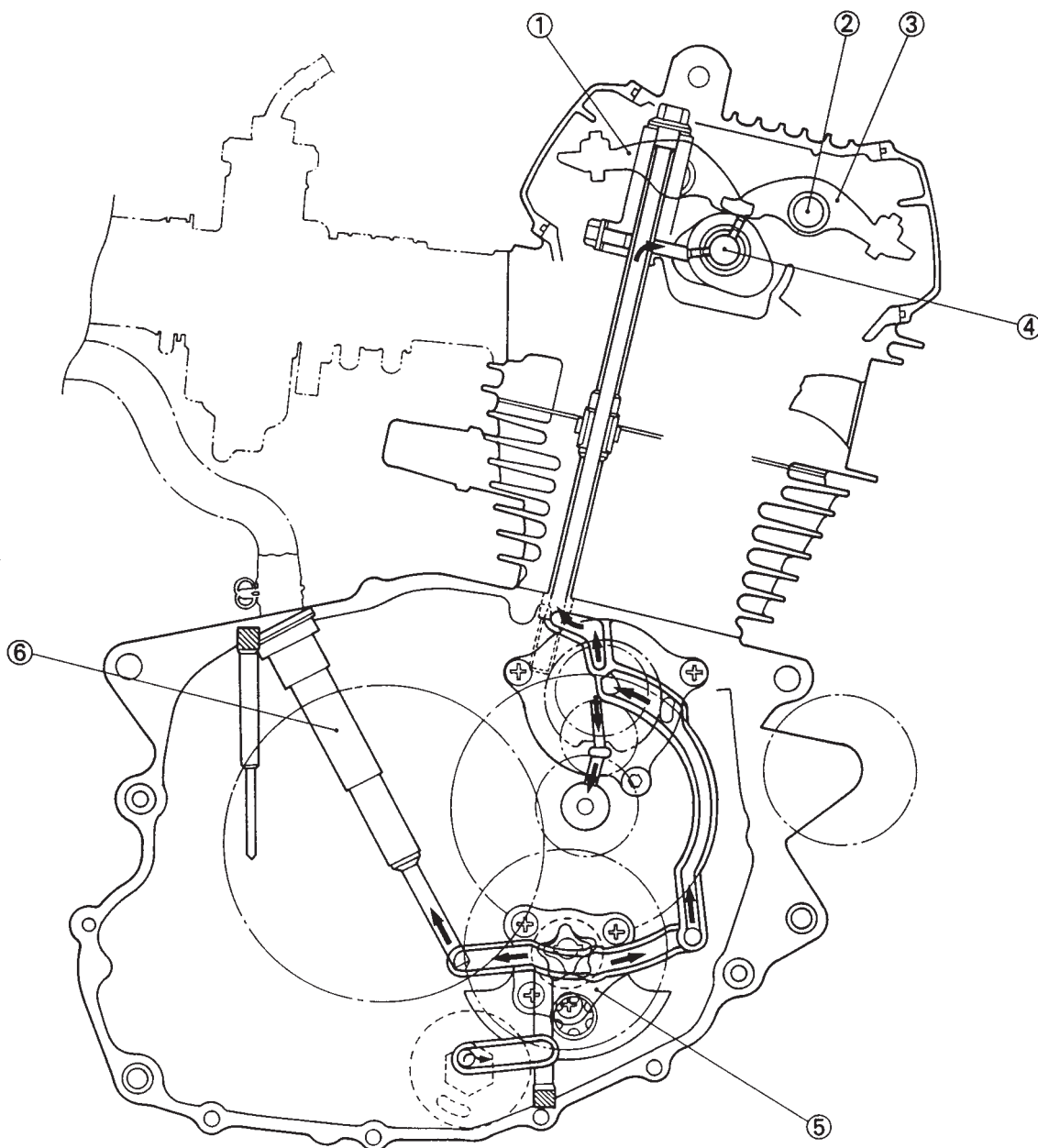


CHASSIS

Lubrication Point	Symbol
Steering head pipe bearing (upper/lower)	
Front wheel oil seal lips (left/right)	
Rear wheel oil seal lips (left/right)	
Rear wheel hub	
Rear brake shoe plate, camshaft and pivoting pin	
Pivoting points (brake pedal shaft and frame)	
Sidestand sliding surface/mounting bolt	
Pivoting point (centerstand)	
Tube guide (throttle grip) inner surface	
Brake lever bolt/master cylinder sliding surface	
Clutch lever bolt/cable sliding surface	
Steering lock sliding surface	
Gear unit (speedometer)	
Chain guard inner surface/swigarm insert surface	

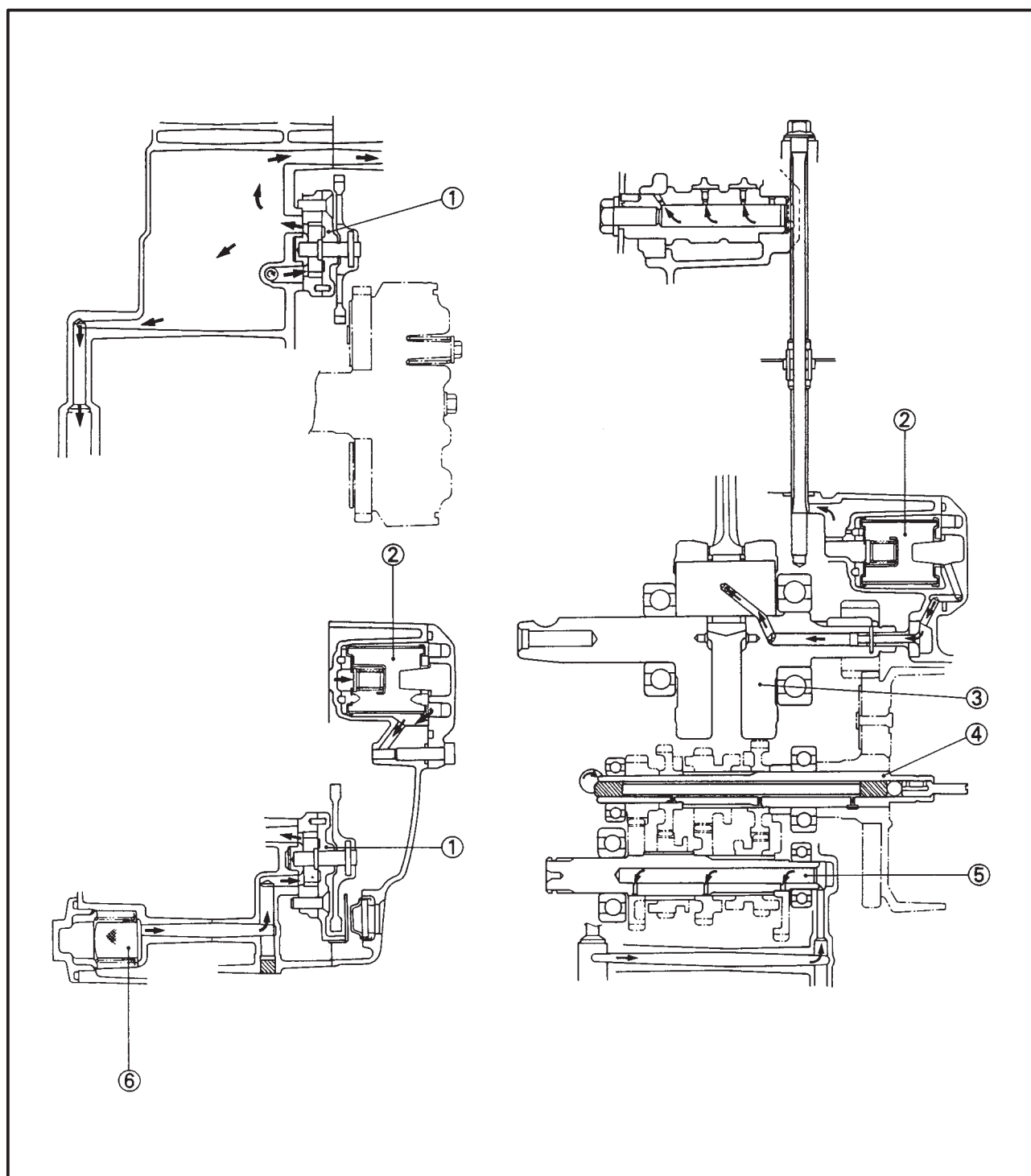
**LUBRICATION DIAGRAM**

- ① Rocker arm (IN)
- ② Rocker shaft
- ③ Rocker arm (EX)
- ④ Camshaft
- ⑤ Oil pump
- ⑥ Push lever





- ① Oil pump
- ② Oil filter
- ③ Crankshaft
- ④ Main axle
- ⑤ Drive axle
- ⑥ Oil strainer





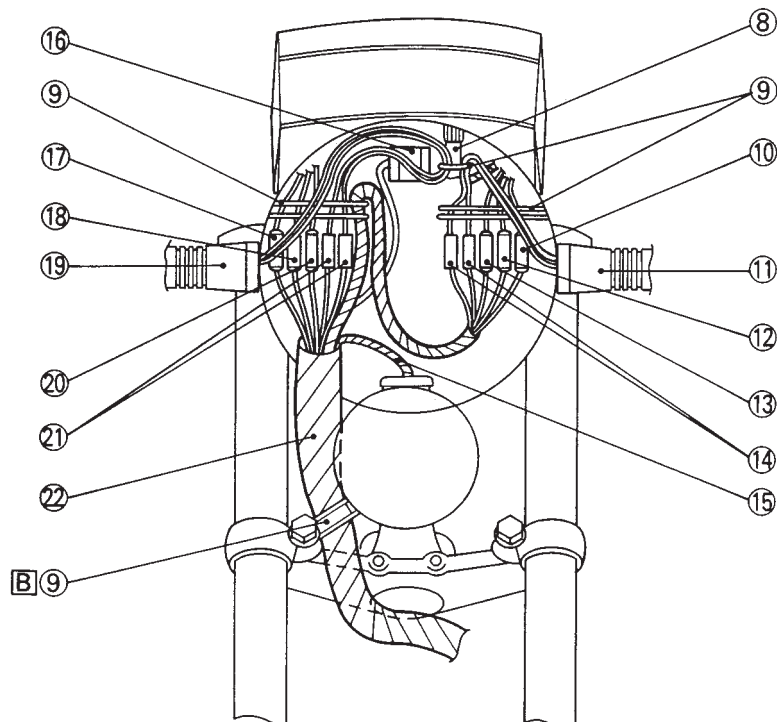
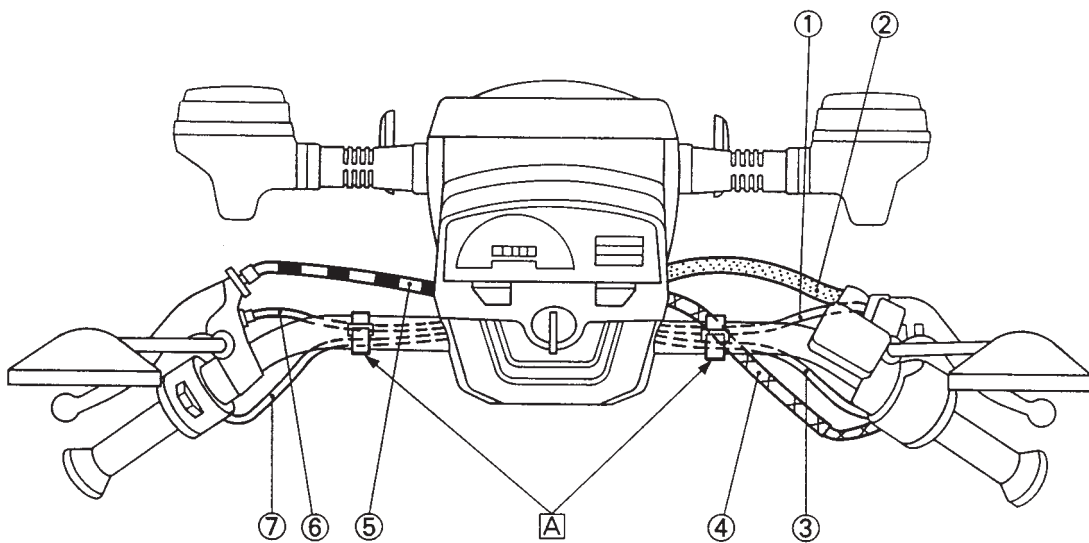
CABLE ROUTING

- ① Front brake switch lead
- ② Brake hose
- ③ Handlebar switch lead (right)
- ④ Throttle cable
- ⑤ Clutch cable
- ⑥ Clutch switch lead
- ⑦ Handlebar switch lead (left)
- ⑧ Speedometer cable
- ⑨ Clamp
- ⑩ Main switch coupler
- ⑪ Front flasher (left)

- ⑫ Clutch switch coupler
- ⑬ Handlebar switch lead (left)
- ⑭ Front flasher lead (left)
- ⑮ Horn lead
- ⑯ Flasher relay
- ⑰ Handlebar switch lead (right)
- ⑱ Front brake switch lead
- ⑲ Front flasher (right)
- ⑳ Meter lead
- ㉑ Front flasher lead (right)
- ㉒ Wireharness

A Clamp the handlebar switch lead, (left and right), front brake switch lead, clutch switch lead to the handlebar.

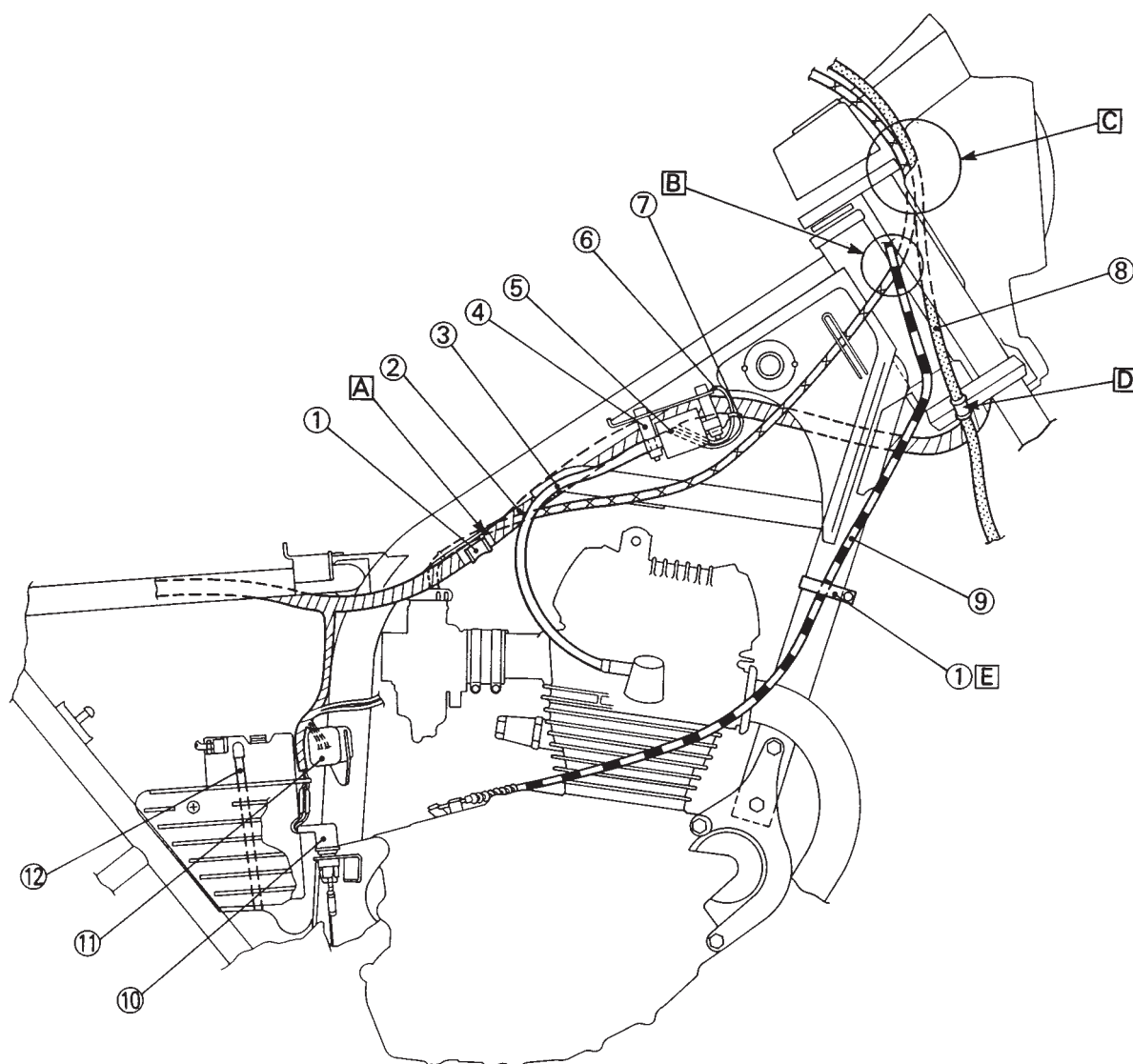
B Do not contact the horn and wireharness.





- ① Clamp
- ② Wireharness
- ③ High tension cord
- ④ Collar
- ⑤ Ignition coil
- ⑥ Ground lead
- ⑦ Ignition coil lead
- ⑧ Brake hose
- ⑨ Clutch cable
- ⑩ Rear brake switch
- ⑪ Starting circuit cut-off relay
- ⑫ Battery breather hose

- A Align the clamp to the white tape on the wireharness
- B Pass the clutch cable through the outside of the throttle cable.
- C Pass the brake hose and throttle cable through the slit of the headlight body. And pass them the right inside of the front fork.
- D Pass the brake hose to the holder.
- E Clamp the clutch cable to the down tube of the frame.



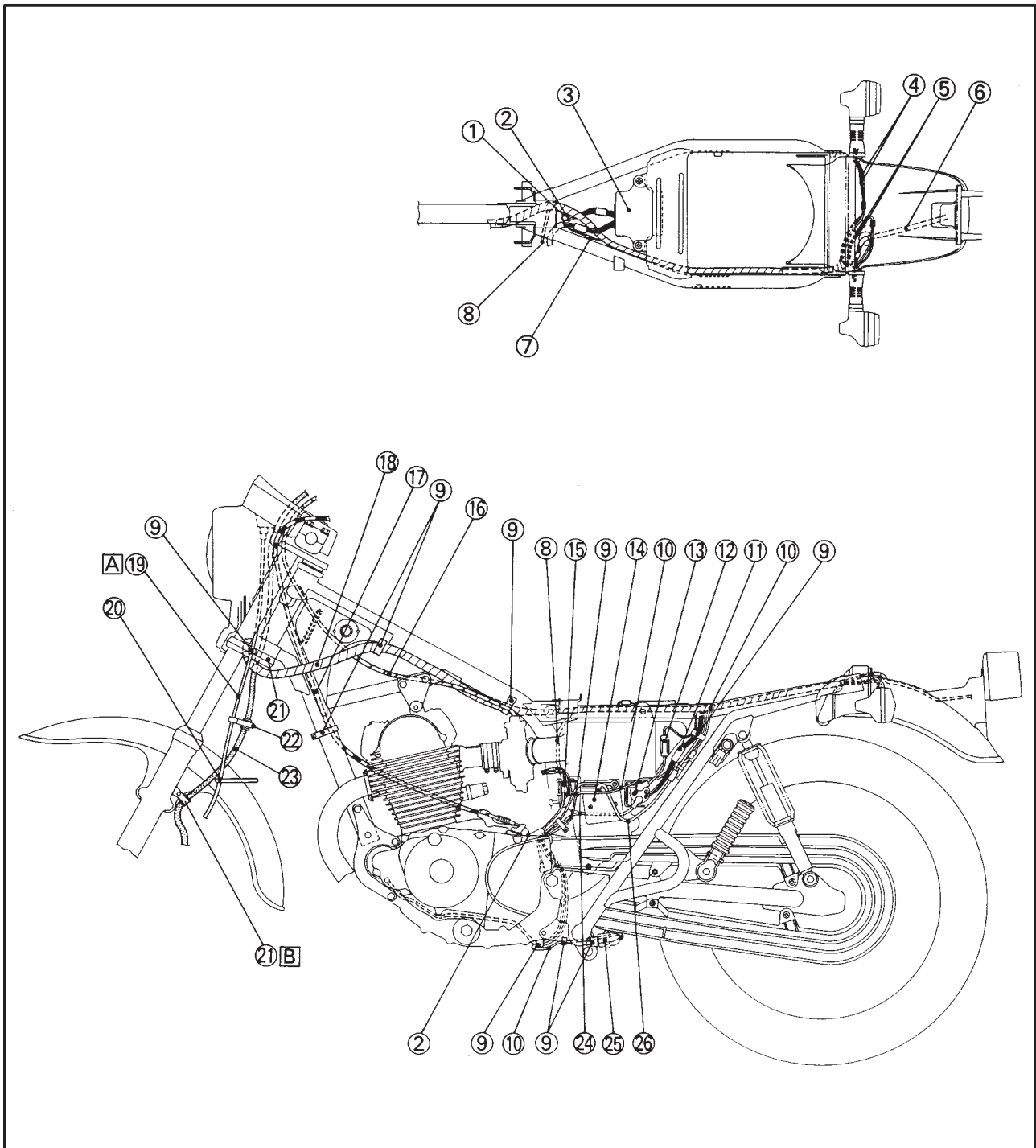
CABLE ROUTING

SPEC



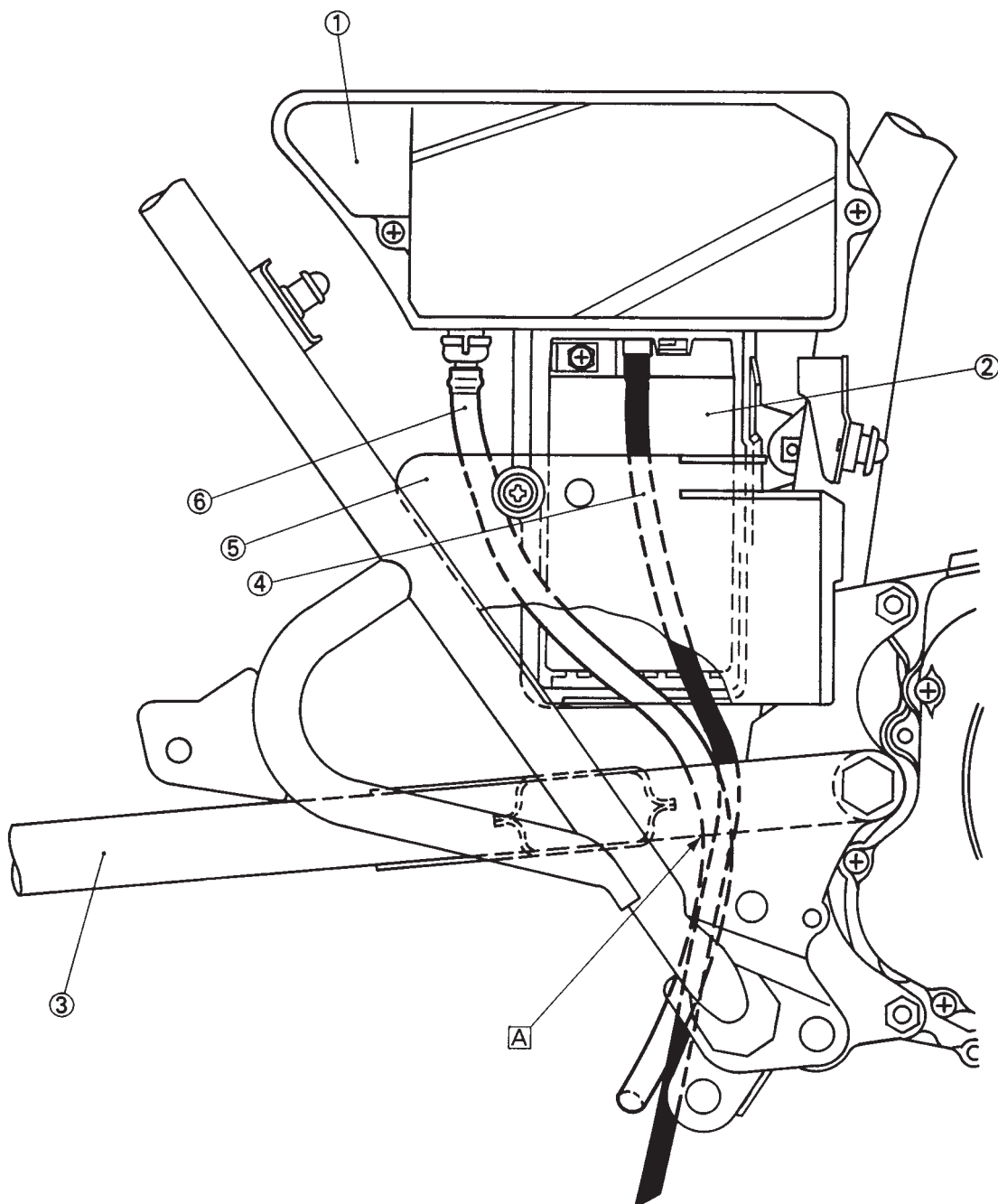
- | | |
|-----------------------------|----------------------------|
| ① Neutral switch lead | ⑭ Rectifier/Regulator |
| ② Pickup coil lead | ⑮ Thermostatic switch |
| ③ C.D.I. unit | ⑯ Throttle cable |
| ④ Rear flasher lead (right) | ⑰ Clutch cable |
| ⑤ Rear flasher lead (left) | ⑱ Wireharness |
| ⑥ Tail/Brake light lead | ⑲ Speedometer cable |
| ⑦ C.D.I. magneto lead | ⑳ Cable holder |
| ⑧ Thermostatic switch lead | ㉑ Brake hose holder |
| ⑨ Clamp | ㉒ Cable holder |
| ⑩ Sidestand switch lead | ㉓ Brake hose |
| ⑪ Starter relay lead | ㉔ Starter motor lead |
| ⑫ Fuse | ㉕ Sidestand switch |
| ⑬ Starter relay | ㉖ Rectifier/Regulator lead |

- Ⓐ Clamp the speedometer cable to the steering bracket and pass the cable to the cable holder.
- Ⓑ Pass the brake hose through the brake hose holder.





- ① Air filter case
- ② Battery
- ③ Swingarm
- ④ Battery breather pipe
- ⑤ Lid
- ⑥ Air filter case drain pipe
- A Pass the air filter case drain pipe inside the swingarm.





CHAPTER 3. PERIODIC INSPECTIONS AND ADJUSTMENTS

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EB300000

PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION

This chapter includes all information necessary to perform recommended inspections and adjustments. These preventive maintenance procedures, if followed, will ensure more reliable vehicle operation and a longer service life. The need for costly overhaul work will be greatly reduced. This information applies to vehicles already in service as well as to new vehicles that are being prepared for sale. All service technicians should be familiar with this entire chapter.

YP301000

PERIODIC MAINTENANCE/LUBRICATION INTERVALS

NO.	ITEM	ROUTINE	BRAKE-IN 1,000 KM	EVERY	
				6,000 km or 6 months	12,000 km or 12 months
1	* Valve(s)	Check valve clearance. Adjust if necessary.	*		*
2	* Cam chain	Check chain tension. Adjust if necessary.	*	*	*
3	Spark plug	Check condition. Clean or replace if necessary.	*	*	*
4	Air filter	Clean. Replace if necessary.		*	*
5	* Carburetor	Check idle speed/starter operation. Adjust if necessary.	*	*	*
6	* Fuel line	Check fuel hose for cracks or damage. Replace if necessary.		*	*
7	Engine oil	Replace (Warm engine before draining.)	*	*	*
8	* Engine oil filter	Replace	*		*
9	* Front brake	Check operation/fluid leakage./see NOTE. Correct if necessary.		*	*
10	Rear brake	Check operation. Adjust if necessary.		*	*
11	Clutch	Check operation. Adjust if necessary.		*	*
12	* Rear arm pivot	Check rear arm assembly for looseness. Correct if necessary. Moderately repack every 24,000 km or 24 months.***			*
13	* Wheels	Check balance/damage/runout/spoke tightness. Replace if necessary.		*	*
14	* Wheel bearings	Check bearing assembly for looseness/damage. Replace if damaged.		*	*
15	* Steering bearing	Check bearing assembly for looseness. Correct if necessary. Moderately repack every 24,000 km or 24 months.**	*	*	*
16	* Front forks	Check operation/oil leakage. Repair if necessary.	*	*	*
17	* Rear shock absorber	Check operation/oil leakage. Repair if necessary.	*	*	*

*: It is recommended that these items be serviced by a Yamaha dealer.

**: Medium weight wheel bearing grease. (bearing type)

***: Lithium soap base grease. (bush type)

PERIODIC MAINTENANCE/LUBRICATION INTERVALS

INSP
ADJ



NO.	ITEM	ROUTINE	BRAKE-IN 1,000 KM	EVERY	
				6,000 km or 6 months	12,000 km or 12 months
18	Drive chain	Check chain slack/alignment. Adjust if necessary. Clean and lube.	EVERY 500 km		
19	* Chassis fasteners	Check all chassis fittings and fasteners. Correct if necessary.	*	*	*
20	* Sidestand	Check operation. Repair if necessary.	*	*	*
21	* Battery	Check specific gravity. Check breather pipe for proper operation. Correct if necessary.		*	*

*: It is recommended that these items be serviced by a Yamaha dealer.

**: Medium weight wheel bearing grease. (bearing type)

***: Lithium soap base grease. (bush type)

NOTE:

Brake fluid replacement:

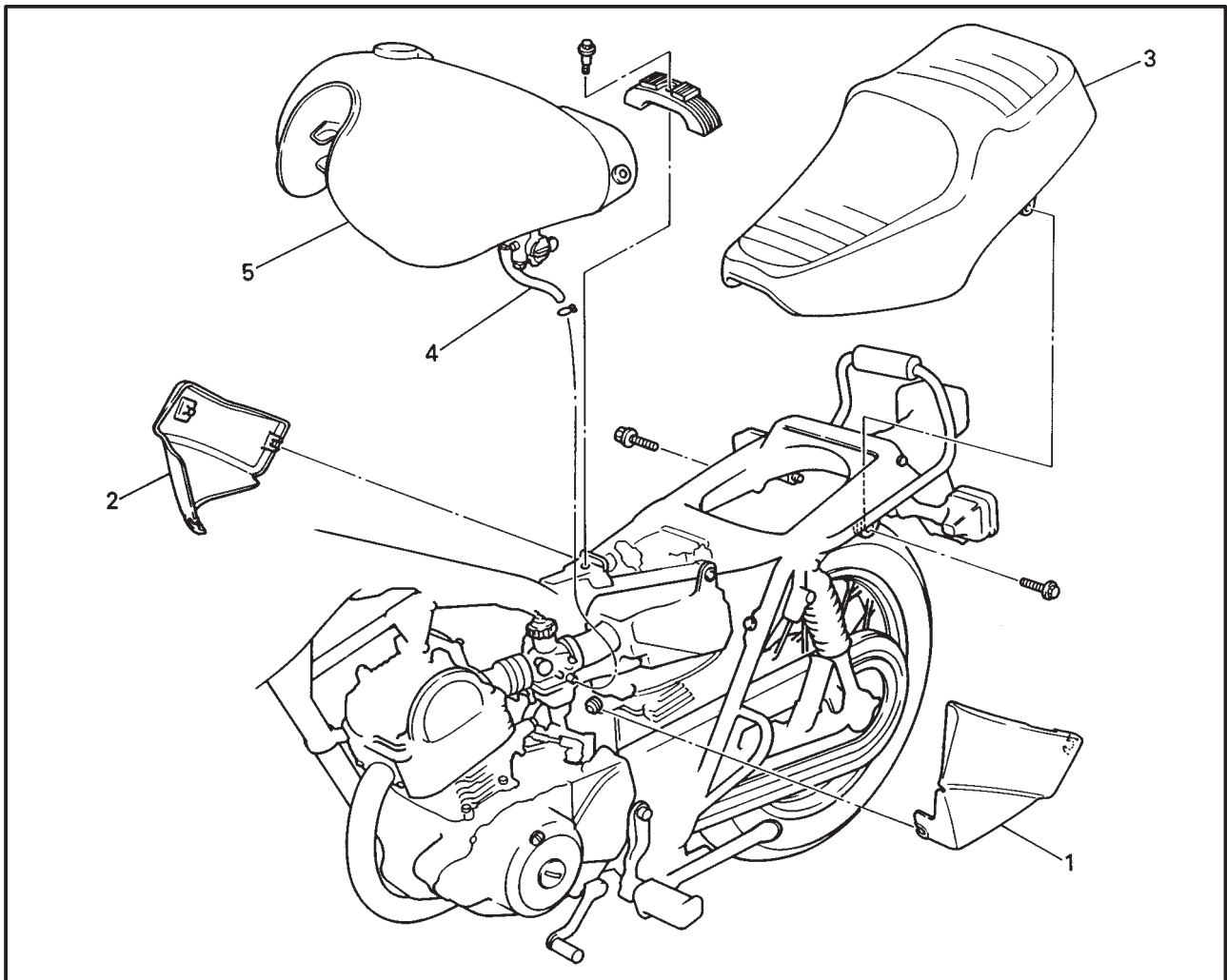
1. When disassembling the master cylinder or caliper cylinder, replace the brake fluid.
Normally check the brake fluid level and fill the fluid as required.
2. On the inner parts of the master cylinder and caliper cylinder, replace the oil seals every two years.
3. Replace the brake hoses every four years, or if cracked or damaged.

SIDE COVER, SEAT AND FUEL TANK

INSP
ADJ



SIDE COVER, SEAT AND FUEL TANK



Order	Job name/Part name	Q'ty	Remarks
	Side cover, seat and fuel tank removal		Remove the parts in order.
1	Side cover (left)	1	NOTE: _____ Disconnect the fuel pipe, set the fuel cock lever "OFF" position. _____
2	Side cover (right)	1	
3	Seat	1	
4	Fuel pipe	1	
5	Fuel tank	1	Reverse the removal procedure for installation.



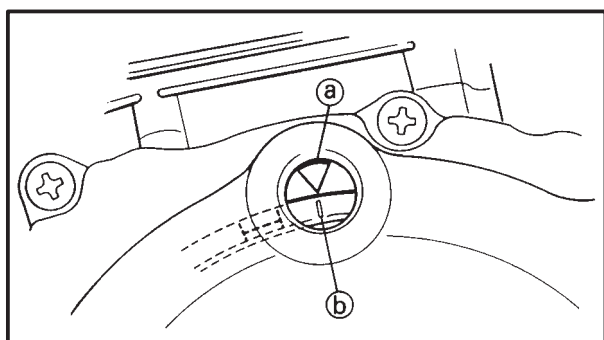
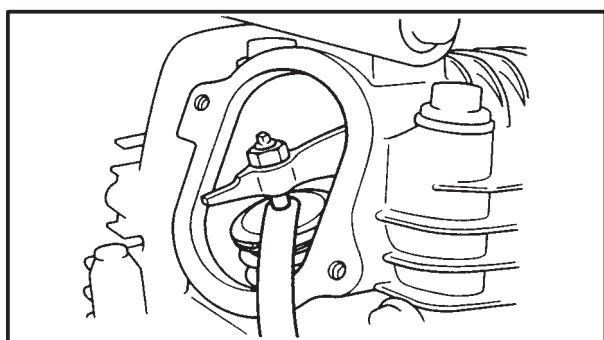
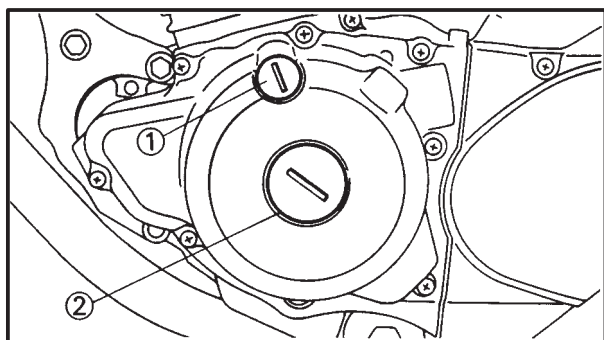
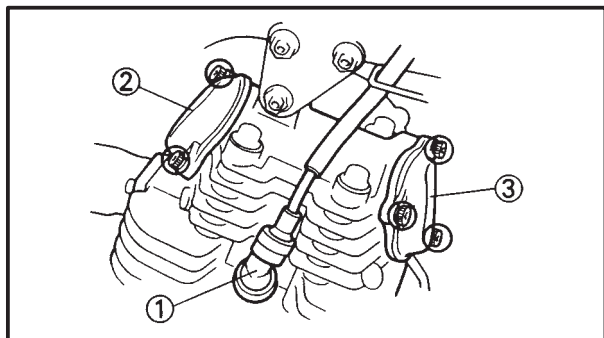
SR03004

ENGINE

VALVE CLEARANCE ADJUSTMENT

NOTE:

Valve clearance adjustment should be made with the engine cool, at room temperature. When the valve clearance is to be measured or adjusted, the piston must be at Top Dead Center (T.D.C.) on the compression stroke.



1. Remove:

- Seat
- Side cover (left and right)
- Fuel tank

Refer to "SIDE COVER, SEAT AND FUEL TANK" section.

2. Remove:

- Spark plug cap ①
- Spark plug
- Valve cover (intake side) ②
- Valve cover (exhaust side) ③

3. Remove:

- Timing check plug (with O-ring) ①
- Center plug (with O-ring) ②

4. Measure:

- Valve clearance
- Out of specification → Adjust.



Valve clearance (cold):

Intake valve 0.05 × 0.09 mm

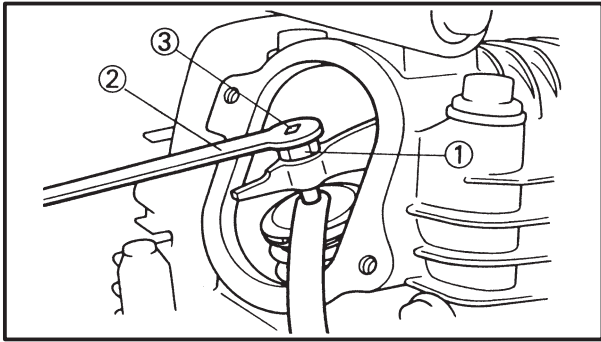
Exhaust valve 0.11 × 0.15 mm

Measurement steps:

- Rotate the crankshaft counterclockwise to align the slit (a) on the rotor with the stationary pointer (b) on the crankcase cover (left) when the piston is Top Dead Center (TDC).
 - Measure the valve clearance by using a feeler gauge.
- Out of specification → Adjust clearance.

VALVE CLEARANCE ADJUSTMENT/ IDLING SPEED ADJUSTMENT

**INSP
ADJ**



5. Adjust:

✱Valve clearance

Adjustment steps:

✱Loosen the locknut (1).

✱Turn the adjuster (3) in or out with the valve adjusting tool (2) until specified clearance is obtained.

Turning in → Valve clearance is decreased.

Turning out → Valve clearance is increased.



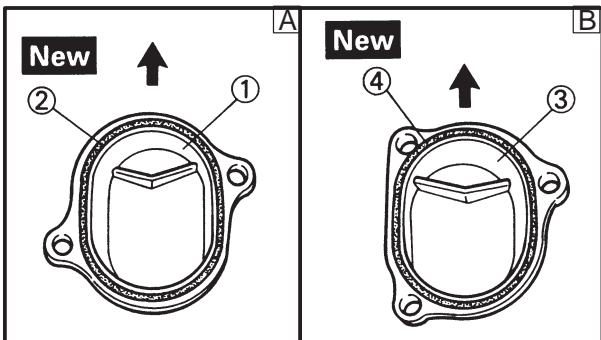
**Valve adjusting tool:
90890-01311**

✱Hold the adjuster to prevent it from moving and tighten the locknut.

14 Nm (1.4 m·kg)

✱Measure the valve clearance.

✱If the clearance is incorrect, repeat above steps until specified clearance is obtained.



6. Install:

✱Valve cover (intake side) (1)

10 Nm (1.0 m·kg)

✱O-ring (2) **New**

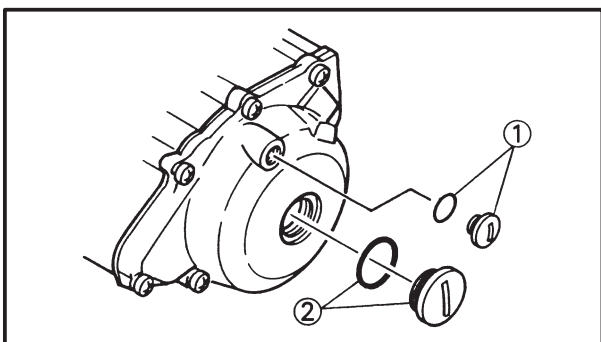
✱Valve cover (exhaust side) (3)

10 Nm (1.0 m·kg)

✱O-ring (4) **New**

A Intake side

B Exhaust side



7. Install:

✱Spark plug

18 Nm (1.8 m·kg)

✱Timing check window screw (1)
(with O-ring)

✱Center plug (2)
(with O-ring)

YP303022

IDLING SPEED ADJUSTMENT

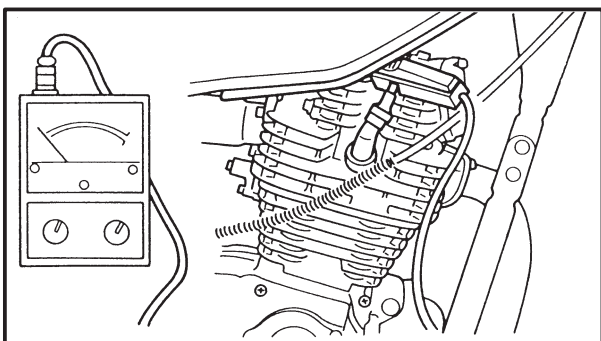
1. Start the engine and let it warm up for several minutes.

2. Attach:

✱Inductive tachometer to the spark plug lead.



**Inductive tachometer:
90890-03113**



IDLING SPEED ADJUSTMENT/ THROTTLE CABLE ADJUSTMENT

INSP
ADJ



3. Check:
 - ✧ Engine idling speed
 - Out of specification → Adjust.



Engine idling speed:
1,250 × 1,350 r/min

4. Adjust:
 - ✧ Engine idle speed

Adjustment steps:

- ✧ Turn the pilot screw ① until it is lightly seated.
- ✧ Turn the pilot screw out by the specified number of turns.



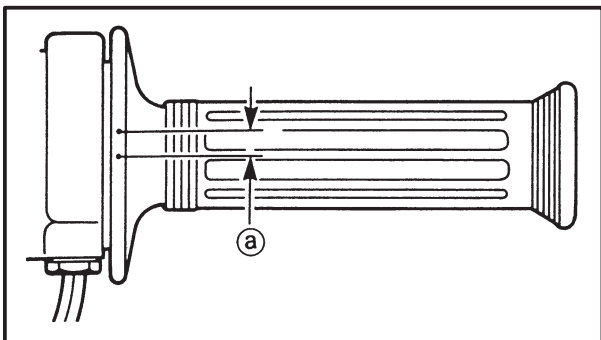
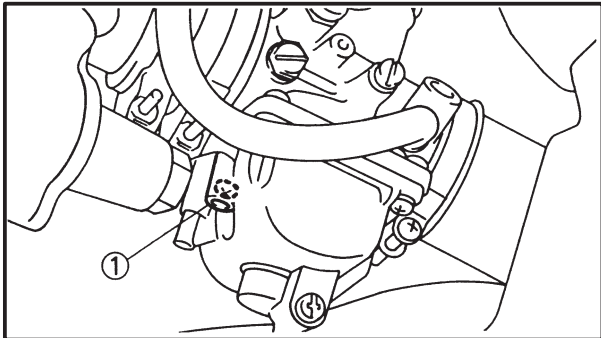
Pilot screw:
2 turns out

- ✧ Turn the throttle stop screw ② in or out until the specified idling speed is obtained.

Turning in → Idling speed is increased.

Turning out → Idling speed is decreased.

5. Adjust:
 - ✧ Throttle cable free play
 - Refer to "THROTTLE CABLE ADJUSTMENT" section.



YP303032

THROTTLE CABLE ADJUSTMENT

NOTE:

Prior to adjusting the throttle cable free play, the engine idling speed should be adjusted.

1. Check:
 - ✧ Throttle cable free play (a)
 - Out of specification → Adjust.



Free play (throttle cable):
3 × 5 mm at throttle grip flange

2. Adjust:
 - ✧ Throttle cable free play

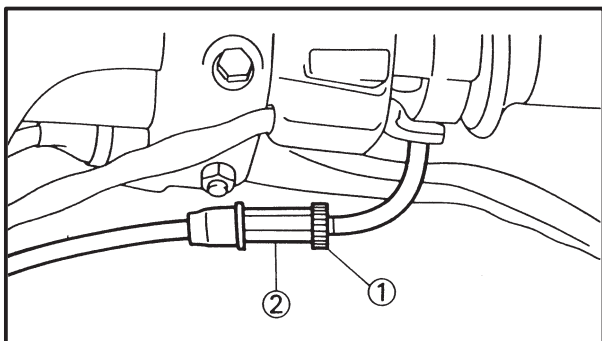
Adjustment steps:

NOTE:

Never accelerate the throttle when stopping the engine.

THROTTLE CABLE ADJUSTMENT/ SPARK PLUG INSPECTION

INSP
ADJ



- ✳ Loosen the locknut ① on the throttle cable.
- ✳ Turn the adjuster ② in or out until specified free play is obtained.

Turning in → Free play is increased.

Turning out → Free play is decreased.

- ✳ Tighten the locknut.

⚠ WARNING

After adjusting, turn the handlebar to the right and to the left to ensure that this does not cause the engine idling speed to change.

EB303040

SPARK PLUG INSPECTION

1. Remove:
 - ✳ Spark plug cap
 - ✳ Spark plug

CAUTION:

Before removing the spark plug, use compressed air to blow away any dirt accumulated in the spark plug wells to prevent it from falling into the cylinder.

1. Check:
 - ✳ Spark plug type
 - Incorrect → Replace.

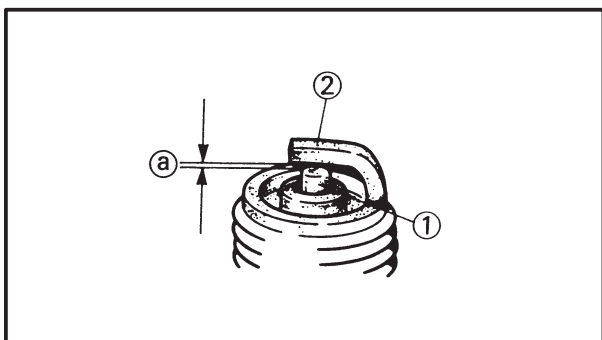


**Standard spark plug:
DR8EA (NGK)**

2. Inspect:
 - ✳ Electrode ①
 - Wear/damage → Replace.
 - ✳ Insulator ②
 - Abnormal color → Replace.
 - Normal color is a medium-to-light tan color.
3. Clean:
 - ✳ Spark plug
 - (with spark plug cleaner or wire brush)
4. Measure:
 - ✳ Spark plug gap ③
 - (with a wire gauge)
 - Out of specification → Adjust gap.

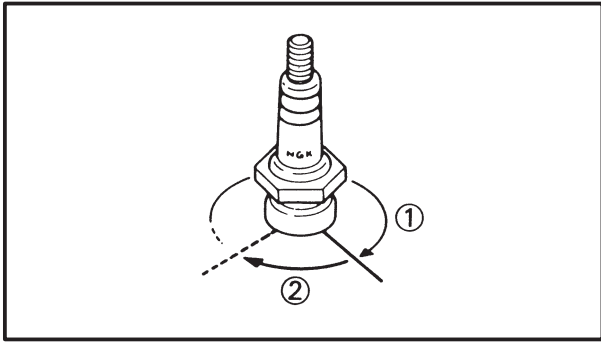


**Spark plug gap:
0.6 × 0.7 mm**



SPARK PLUG INSPECTION/ IGNITION TIMING CHECK

**INSP
ADJ**



5. Install:

✱Spark plug

18 Nm (1.8 m·kg)

NOTE:

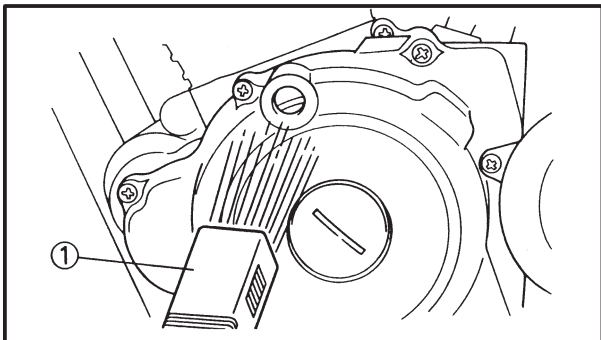
Before installing a spark plug, clean the gasket surface and plug surface.

YP303052

IGNITION TIMING CHECK

NOTE:

Prior to checking the ignition timing, check all electrical connections related to the ignition system. Make sure all connections are tight and free of corrosion and that all ground connections are tight.



1. Remove:

✱Timing check plug

2. Attach:

✱Timing light ①

Engine tachometer ②
(to the spark plug lead)

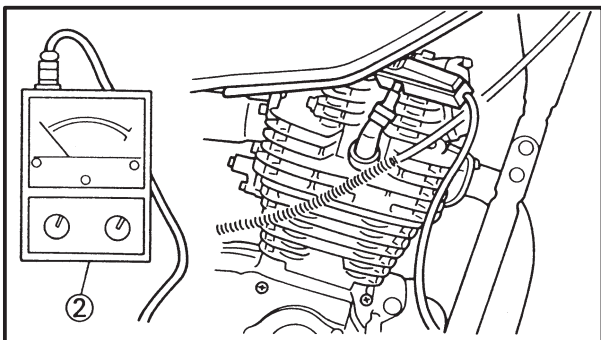


Timing light:

90890-03141

Engine tachometer:

90890-03113



3. Check:

✱Ignition timing

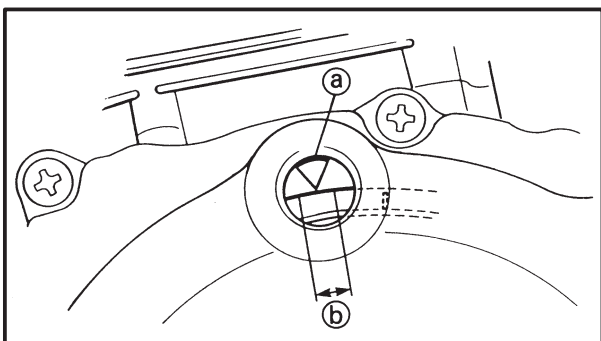
Checking steps:

✱Start the engine and let it warm up for several minutes. Let the engine run at the specified speed.



Engine idling speed:

1,250 × 1,350 r/min



✱Visually check the stationary pointer (a) to verify it is within the required firing range (b) indicated on the flywheel.

Incorrect firing range → Check the ignition system.

NOTE:

Ignition timing is not adjustable.

3. Install:

✱Timing check plug

SR303060

COMPRESSION PRESSURE MEASUREMENT

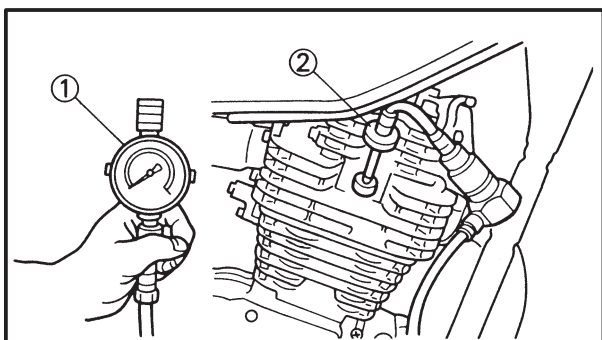
NOTE:

Insufficient compression pressure will result in performance loss.

1. Check:
 - *Valve clearance
Out of specification → Adjust.
Refer to "VALVE CLEARANCE ADJUSTMENT" section.
2. Start the engine and let it warm up for several minutes.
3. Turn off the engine.
4. Remove:
 - *Spark plug

CAUTION:

Before removing the spark plug, use compressed air to blow away any dirt accumulated in the spark plug well to prevent it from falling into the cylinder.



5. Attach:
 - *Compression gauge ①



Compression gauge:
90890-03081
Adaptor:
90890-04082

6. Measure:
 - *Compression pressure
If it exceeds the maximum pressure allowed
→ Inspect the cylinder head, valve surfaces and piston crown for carbon deposits.
If it is below the minimum pressure → Squirt a few drops of oil into the affected cylinder and measure again.
Follow the table below.

Compression pressure (With oil applied into cylinder)	
Reading	Diagnosis
Higher than without oil	Worn or damaged pistons
Same as without oil	Possible defective ring(s), valves, cylinder head gasket or piston → Repair.

COMPRESSION PRESSURE MEASUREMENT/ ENGINE OIL LEVEL INSPECTION

**INSP
ADJ**



Compression pressure (at sea level):

Standard:

1,200 kPa (12.0 Kg/cm², 12 bar)

Minimum:

1,100 kPa (11.0 Kg/cm², 11 bar)

Measurement steps:

✧Crank the engine with the throttle wideopen until the reading on the compression gauge stabilizes.

⚠ WARNING

Before cranking the engine, ground all spark plug leads to prevent sparking.

7. Install:

✧Spark plug



18 Nm (1.8 m·kg)

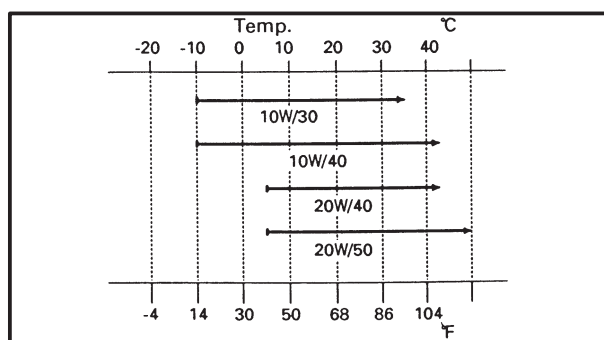
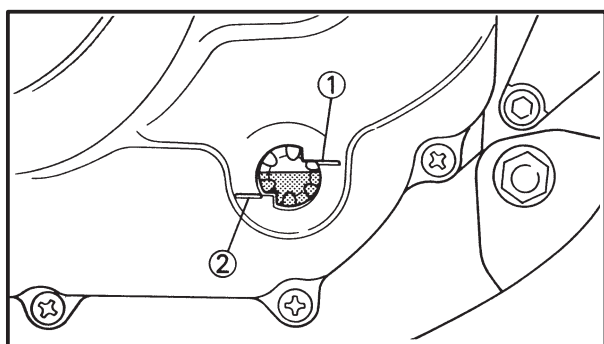
YP303070

ENGINE OIL LEVEL INSPECTION

1. Stand the motorcycle on a level surface.

NOTE:

Make sure the motorcycle is upright when inspecting the oil level.



2. Start the engine and let it warm up for a few minutes.
3. Turn off the engine.
4. Inspect:

✧Engine oil level

Oil level should be between maximum ① and minimum ② marks.

Oil level is below the minimum mark

→ Add oil up to the proper level.

RECOMMENDED ENGINE OIL

Refer to the chart for selection of the oils suited to the atmospheric temperature.



Recommended oil:

Refer to the following chart for selection of oils which are suited to the atmospheric temperatures.

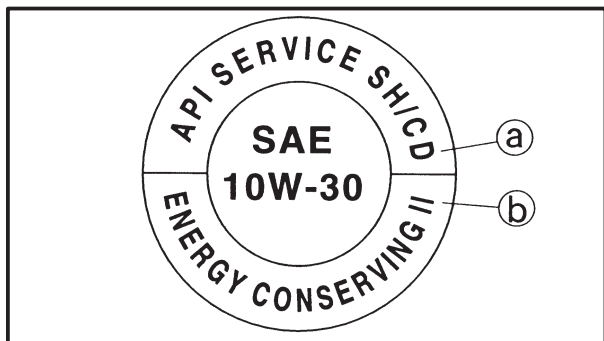
Recommended engine oil classification:

API STANDARD:

API "SE" or higher grade

ENGINE OIL LEVEL INSPECTION/ ENGINE OIL REPLACEMENT

INSP
ADJ



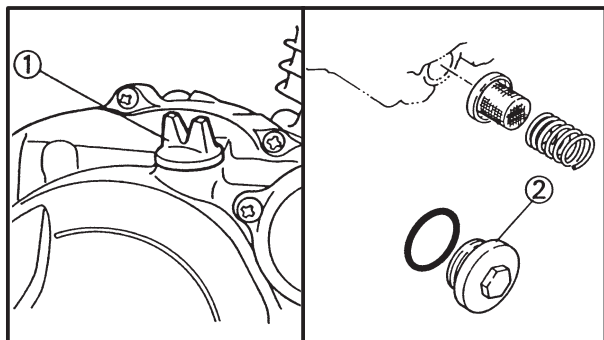
CAUTION:

- ✘ Do not put in any chemicals additives or use oils with a grade of CD ^a or higher.
- ✘ Be sure not to use oils labeled "ENERGY CONSERVING II" ^b or higher. Engine oil also lubricates the clutch and additives could cause clutch slippage.
- ✘ Be sure no foreign material enters the crankcase.

5. Start the engine and let it warm up for a few minutes.
6. Turn off the engine and inspect the oil level once again.

NOTE:

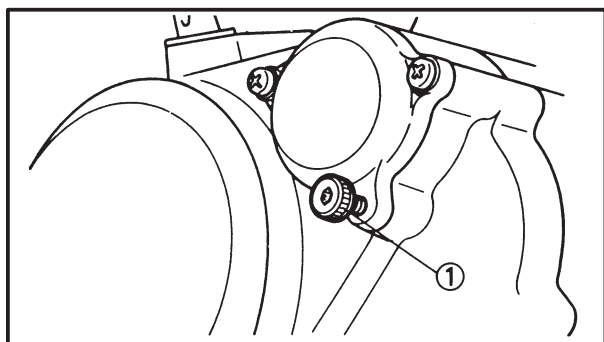
Wait a few minutes until the oil settles before inspecting the oil level.



SR303082

ENGINE OIL REPLACEMENT

1. Start the engine and let it warm up for several minutes.
2. Turn off the engine and place a container under the engine.
3. Remove:
 - ✘ Oil filler plug ¹
 - ✘ Drain plug ²
 Drain the crankcase of its oil.

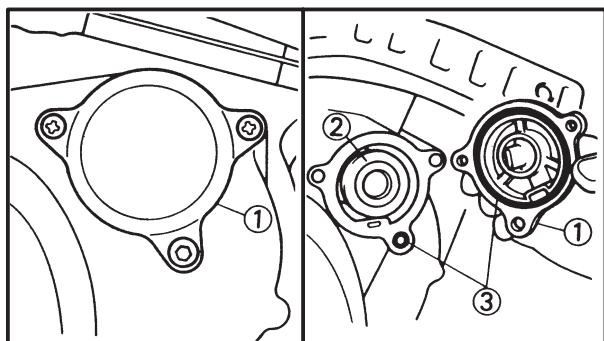


4. Loosen:
 - ✘ Bolt ¹ (oil filter cover-lower)
5. Drain the crankcase of its oil.

If the oil filter is to be replaced during this procedure, remove the following parts and reinstall them afterwards.

Replacement steps:

- ✘ Remove the oil filter cover ¹ and oil filter element ².
- ✘ Check the O-ring ³. If it is cracked or damaged, replace it.
- ✘ Install the oil filter element and oil filter cover.



Screw:
7 Nm (0.7 m·kg)
Bolt:
10 Nm (1.0 m·kg)

ENGINE OIL REPLACEMENT

INSP
ADJ



6. Install:

- Drain plug



43 Nm (4.3 m•kg)

NOTE:

Inspect the O-ring. If it is damaged, replace it with a new one.

CAUTION:

Before reinstalling the drain plug, do not forget to fit the O-ring, compression spring and oil strainer. Be sure you fit each item in the correct position and order.

7. Fill:

- Crankcase



Oil quantity:

With oil filter change

1.1 L

Without oil filter change

1.0 L

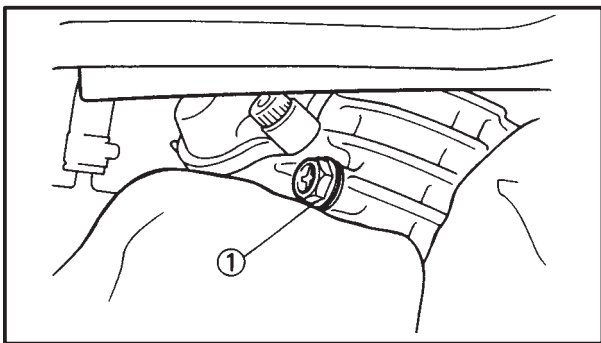
Refer to “ENGINE OIL LEVEL INSPECTION” section.

8. Inspect:

- Oil flow

Inspection steps:

- Slightly loosen the oil check bolt ①.
- Start the engine and keep it idling until the oil begins to seep from the oil check bolt.
If no oil comes out after one minute, turn the engine off so it will not seize.
- Check oil passages and oil pump for damage or leakage.
- Start the engine after solving the problem(s), and recheck the oil pressure.
- Tighten the oil check bolt to specification.

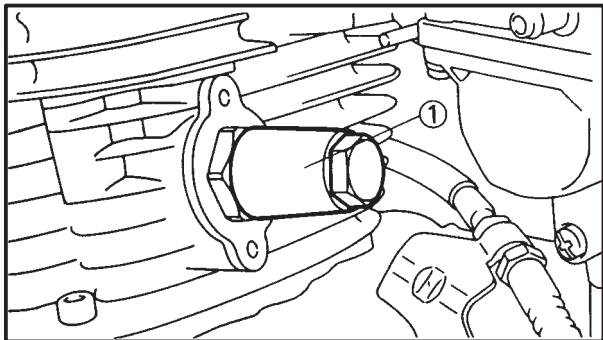


Oil check bolt:

7 Nm (0.7 m•kg)

TIMING CHAINE TENSIONER ADJUSTMENT/ CLUTCH ADJUSTMENT

**INSP
ADJ**

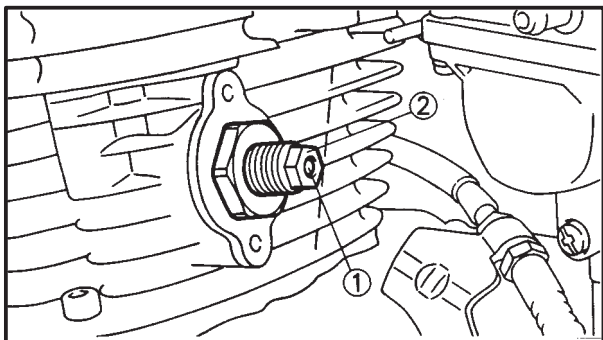


SR*****

TIMING CHAINE TENSIONER ADJUSTMENT

1. Remove:

- Cap ①

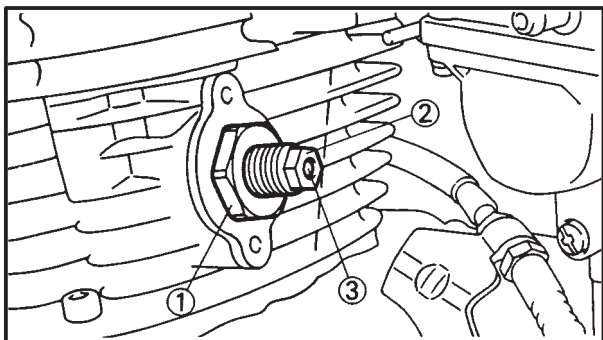


2. Check:

- Rod

Check the rod end ① is flush with the adjuster end ②.

Not flush → Adjust.



3. Adjust:

- Timing chine tension

Adjustment steps:

- Loosen the locknut ①.
- Turn the adjuster ② in or out until the rod end ③ is flush with the adjuster end.
- Tighten the locknut ①.



Locknut:

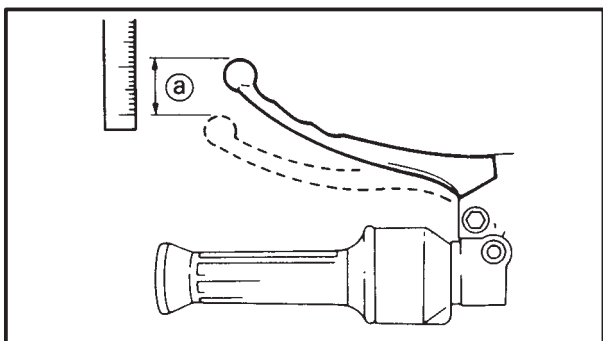
30 Nm (3.0 m•kg)

4. Install:

- Cap



5 Nm (0.5 m•kg)



EB303093

CLUTCH ADJUSTMENT

1. Check:

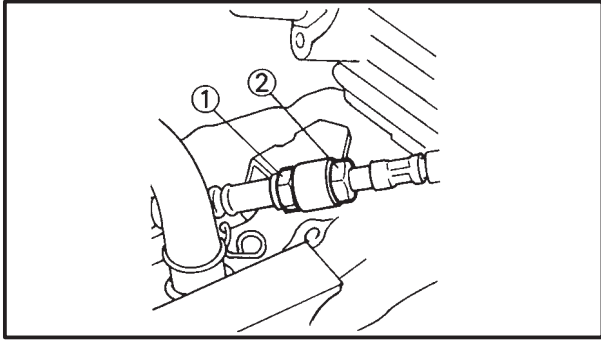
- Clutch cable free play ①

Out of specification → Adjust.



Free play (clutch lever):

10 × 15 mm at clutch lever end



2. Adjust:
- Clutch cable free play

Adjustment steps:

Crankcase side

- Make sure that the adjuster (1) and locknut (2) are fully tightened.
- Loosen the locknut (2).
- Turn the adjuster (1) in or out until the specified free play is obtained.

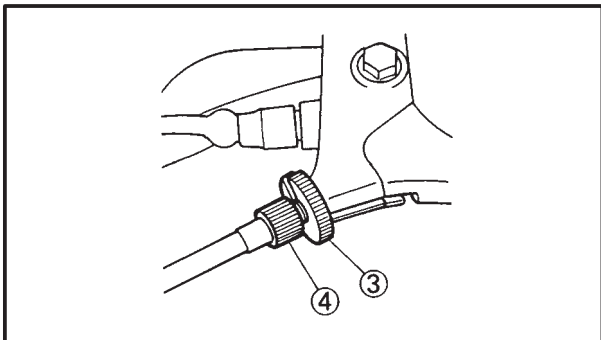
Turning in → Free play is decreased.

Turning out → Free play is increased.

- Tighten the locknut (2).

NOTE:

If the amount of free play is still incorrect, adjust the clutch cable free play with the other adjuster (on the clutch lever holder).



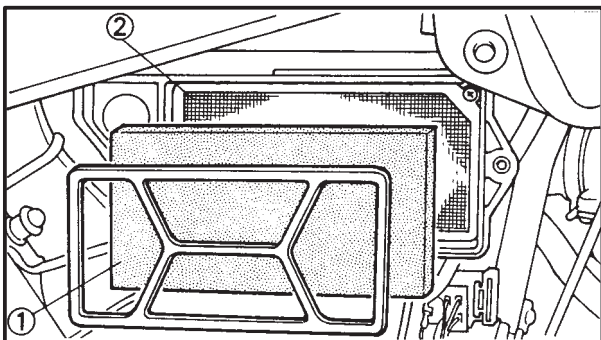
Lever side

- Loosen the locknut (3).
- Turn the adjuster (4) in or out until the specified free play is obtained.

Turning in → Free play is increased.

Turning out → Free play is decreased.

- Tighten the locknut (3).



SR303123

AIR FILTER CLEANING

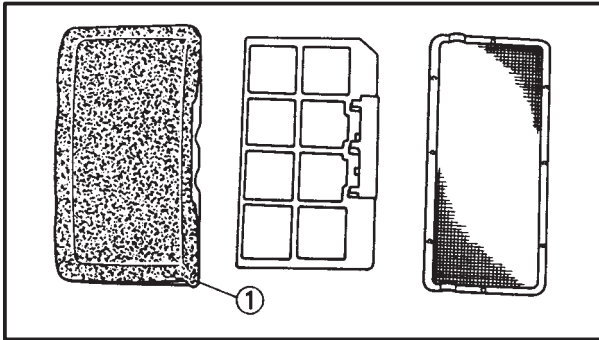
1. Remove:
- Side cover (right)
 - Air filter element holder
 - Air filter element (1)
 - Plate (2)

CAUTION:

Never operate the engine without the air filter element installed. Unfiltered air will cause rapid wear of engine parts and may damage the engine. Operating the engine without the filter element will also affect the carburetor tuning, leading to poor engine performance and possible overheating.

AIR FILTER CLEANING/ EXHAUST SYSTEM INSPECTION

INSP
ADJ



2. Inspect:

- Air filter element ①
Damage → Replace.

3. Clean:

- Air filter element
Use solvent to clean the element.

NOTE:

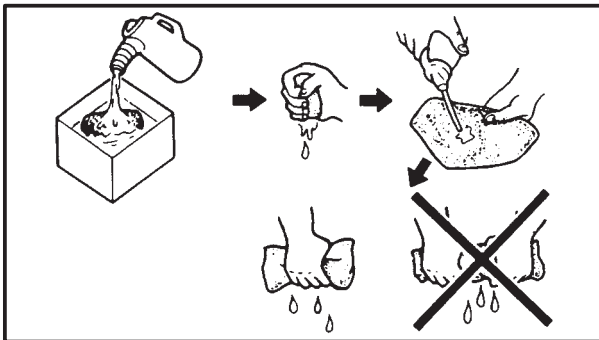
After cleaning, remove the remaining solvent by squeezing the element.

CAUTION:

Do not twist the filter element when squeezing it.

⚠ WARNING

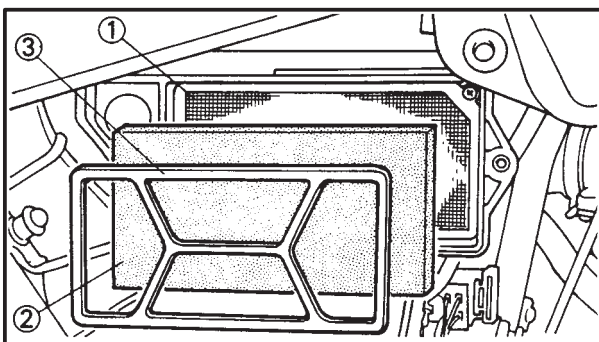
Never use low flash point solvents such as gasoline to clean the air filter element. Such solvents may cause a fire or an explosion.



4. Apply the recommended oil to the entire surface of the filter and squeeze out the excess oil. The element should be wet but not dripping.

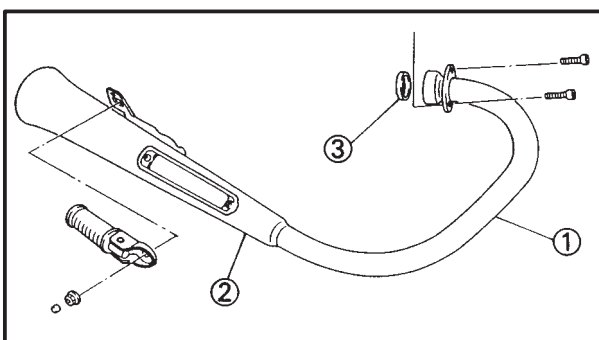


Recommended oil:
Engine oil



5. Install:

- Plate ①
- Air filter element ②
- Air filter element holder
- Side cover (right)



T*****

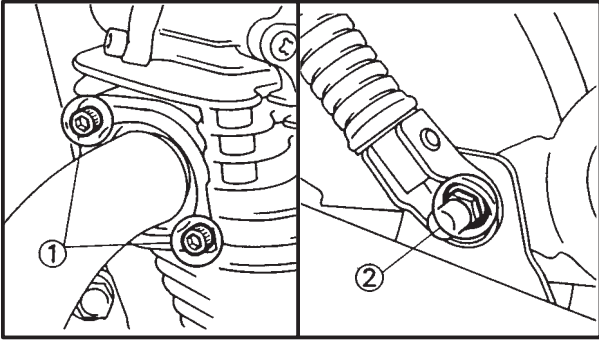
EXHAUST SYSTEM INSPECTION

1. Inspect:

- Exhaust pipe ①
Crack/Damage → Replace.
- Muffler ②
- Gasket ③
Exhaust gas leaks → Replace.

EXHAUST SYSTEM INSPECTION

INSP
ADJ



2. Check:
- Tightening torque



Bolt ① :
12 Nm (1.2 m•kg)

Nut ② :
20 Nm (2.0 m•kg)



EB304002

CHASSIS

FRONT BRAKE ADJUSTMENT

1. Check:

- ✳ Brake lever free play (a)
Out of specification → Adjust.



Free play (Brake lever):
2 × 5 mm at brake lever end

2. Adjust:

- ✳ Brake lever free play

Adjustment steps:

- ✳ Loosen the locknut (1).
- ✳ Turn the adjuster (2) in or out until the specified free play is obtained.

Turning in → Free play is decreased.

Turning out → Free play is increased.

- ✳ Tighten the locknut.

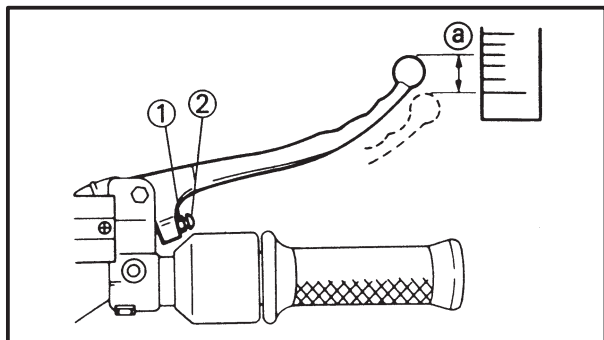
CAUTION:

Make sure that there is no brake drag after adjusting the front brake lever free play.



WARNING

A soft or spongy feeling in the brake lever can indicate the presence of air in the brake system. This air must be removed by bleeding the brake system before the motorcycle is operated. Air in the brake system will considerably reduce braking performance and could result in loss of control and possibly an accident. Inspect and bleed the brake system if necessary.



NB304012

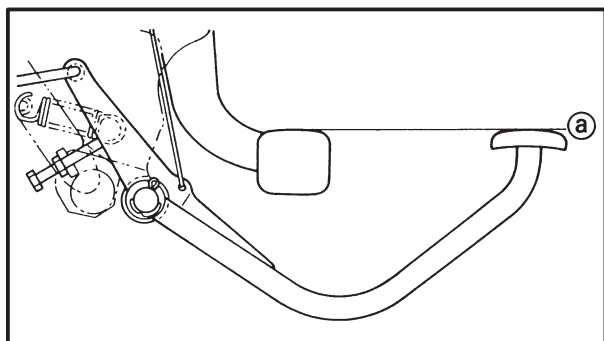
REAR BRAKE ADJUSTMENT

1. Check:

- ✳ Brake pedal height (a)
Out of specification → Adjust.

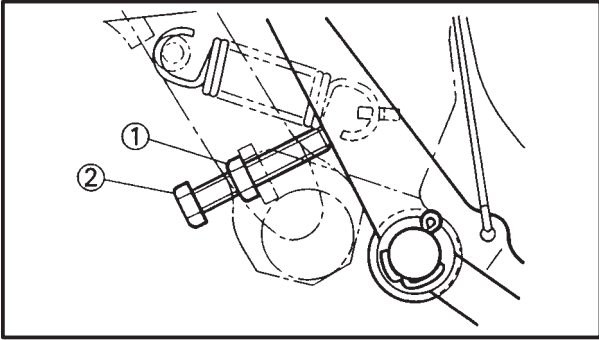


Brake pedal height:
0 mm
below the top of the footrest



REAR BRAKE ADJUSTMENT

INSP
ADJ



2. Adjust:
- Brake pedal height

Adjustment steps:

- Loosen the locknut ①.
- Turn the adjuster ② in or out until the specified pedal height is obtained.

Turning in → Pedal height is decreased.

Turning out → Pedal height is increased.

- Tighten the locknut.

3. Check:
- Brake pedal free play ③
- Out of specification → Adjust



Free play (Brake pedal):
20 × 30 mm at brake lever end

4. Adjust:
- Brake pedal free play

Adjustment steps:

- Turn the adjuster ① in or out until the specified free play is obtained.

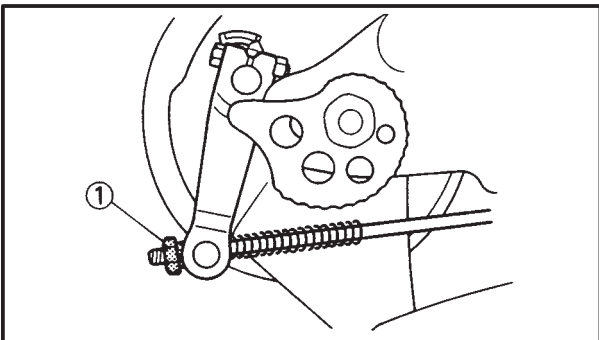
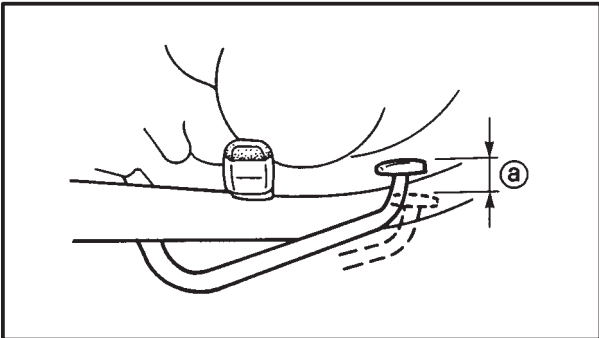
Turning in → Free play is decreased.

Turning out → Free play is increased.

CAUTION:

Make sure that there is no brake drag after adjusting the brake pedal height and the free play.

5. Adjust:
- Brake light switch
- Refer to "BRAKE LIGHT SWITCH ADJUSTMENT".



BRAKE FLUID LEVEL INSPECTION

INSP
ADJ



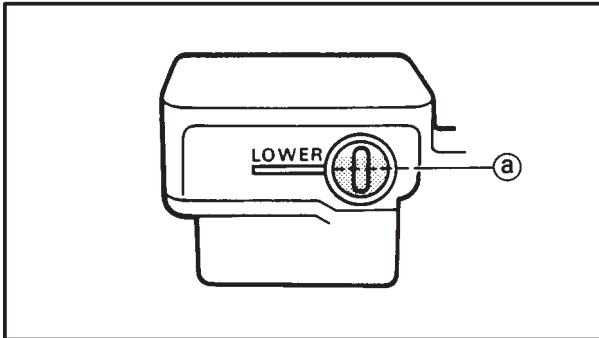
EB304020

BRAKE FLUID LEVEL INSPECTION

1. Stand the motorcycle on a level surface.

NOTE:

- Make sure the motorcycle is upright when inspecting the brake fluid level.
- Stand the motorcycle on its centerstand if it has one. If not, place a suitable stand under the motorcycle.



2. Inspect:

- Brake fluid level
Brake fluid level is below the "LOWER" level line (a) → Fill to proper level.



Recommended brake fluid:
DOT #4 or DOT #3

NOTE:

For a correct reading of the brake fluid level, make sure the top of the handlebar brake fluid reservoir is horizontal.

CAUTION:

Brake fluid may corrode painted surfaces or plastic parts. Always clean up any spilt fluid immediately.

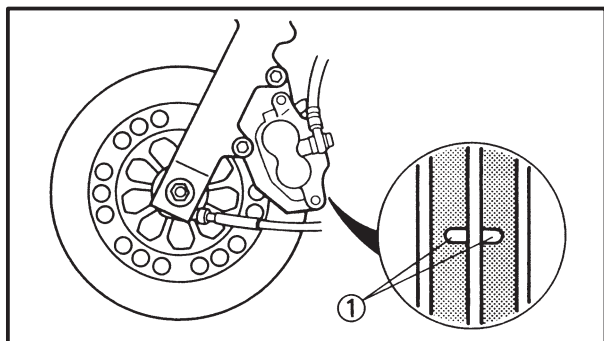


WARNING

- Use only the designated brake fluid. Other fluids may deteriorate the rubber seals, causing leakage and poor brake performance.
- Refill with the same type of fluid. Mixing fluids may result in a harmful chemical reaction leading to poor brake performance.
- Be careful that water does not enter the brake fluid reservoir during refilling. Water will significantly lower the boiling point of the fluid and may cause vapour lock.

BRAKE PAD INSPECTION/BRAKE SHOE INSPECTION/ BRAKE LIGHT SWITCH ADJUSTMENT

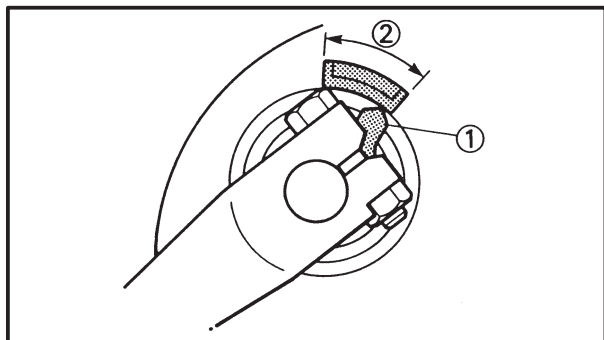
**INSP
ADJ**



EB304030

BRAKE PAD INSPECTION

1. Operate the brake lever.
2. Inspect:
 - ✧ Brake pad (front)
 - Wear indicators ① almost touch the brake disc → Replace the brake pads as a set.
 - Refer to "FRONT BRAKE" in CHAPTER 6.



EB304040

BRAKE SHOE INSPECTION

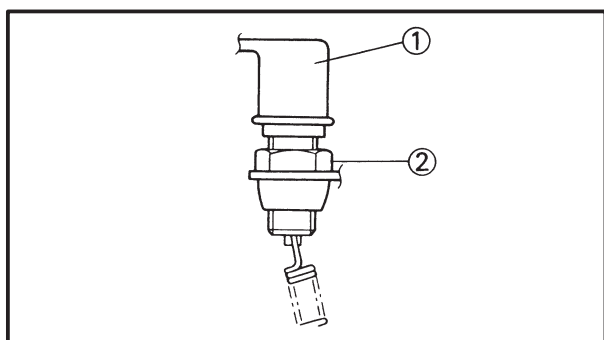
1. Operate the brake pedal.
2. Inspect:
 - ✧ Brake shoes
 - Wear indicator ① reaches the wear limit line ② → Replace the brake shoes as a set.
 - Refer to "REAR WHEEL" in CHAPTER 6.

EB304050

BRAKE LIGHT SWITCH ADJUSTMENT

NOTE:

- ✧ The brake light switch is operated by movement of the brake pedal.
- ✧ Adjustment is correct when the brake light comes on just before the braking effect actually starts.



1. Check:
 - ✧ Brake light operation timing
 - ✧ Incorrect → Adjust.
2. Adjust:
 - ✧ Brake light operating timing

Adjustment steps:

- ✧ Hold the main body ① of the switch with your hand so that it does not rotate, and turn the adjuster ② in or out until the proper operation timing is obtained.

Turning in → Brake light comes on fast.

Turning out → Brake light comes on slows.



EB304070

AIR BLEEDING (HYDRAULIC BRAKE SYSTEM)

⚠ WARNING

Bleed the brake system whenever:

- The system is disassembled.
- A brake hose is loosened or removed.
- The brake fluid level is very low.
- Brake operation is faulty.

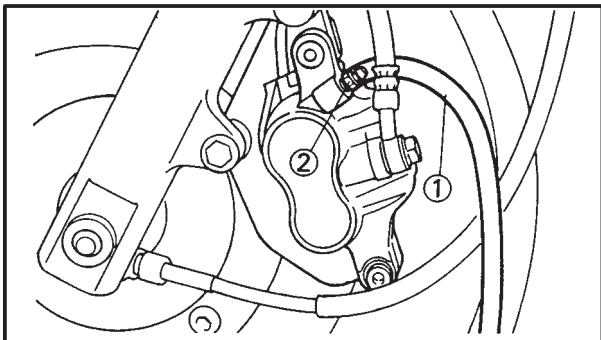
Loss of braking performance may occur if the brake system is not properly bled.

1. Bleed:

- Brake system

Air bleeding steps:

- a. Fill the reservoir with the proper brake fluid.
- b. Install the diaphragm. Be careful not to spill any fluid or allow the reservoir to overflow.
- c. Connect a clear plastic hose ① tightly to the caliper bleed screw ②.
- d. Place the other end of the hose into a container.
- e. Slowly apply the brake lever several times.
- f. Pull the lever in. Hold the lever in position.
- g. Loosen the bleed screw and allow the lever to travel towards its limit.
- h. Tighten the bleed screw when the lever limit has been reached, then release the lever.
- i. Repeat steps (e) to (h) until all air bubbles have disappeared from the brake fluid.



NOTE:

When bleeding the brake system, make sure that there is always enough brake fluid in the brake fluid reservoir before applying the brake lever. Ignoring this precaution could allow air to enter the brake system, considerably lengthening the bleeding procedure.

AIR BLEEDING/ DRIVE CHAIN SLACK ADJUSTMENT

INSP
ADJ



j. Tighten the bleed screw.



Bleed screw:
6 Nm (0.6 m•kg)

NOTE:

If bleeding is difficult, it may be necessary to let the brake fluid settle for a few hours. Repeat the bleeding procedure when the tiny bubbles in the brake system have disappeared.

k. Fill the brake fluid reservoir to the proper level.

Refer to “BRAKE FLUID LEVEL INSPECTION”.



WARNING

Check brake operation after bleeding the brake system.

SR304093

DRIVE CHAIN SLACK ADJUSTMENT

NOTE:

Before checking and adjusting, rotate the rear wheel several revolutions and check the slack at several points to find the tightest point. Check and if necessary adjust the drive chain slack with the rear wheel in this “tightest” position.

CAUTION:

Too little chain slack will overload the engine and other vital parts; keep the slack within the specified limits.

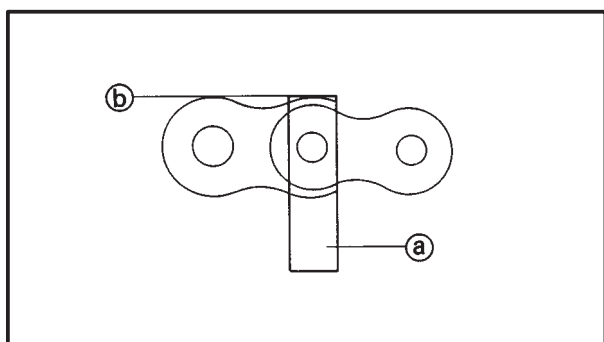
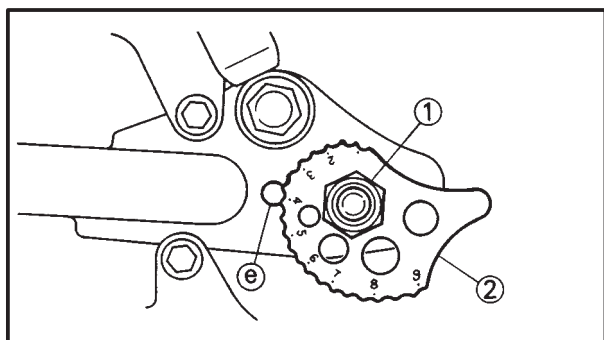
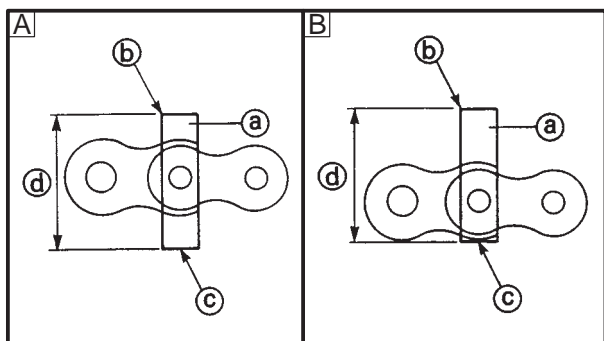
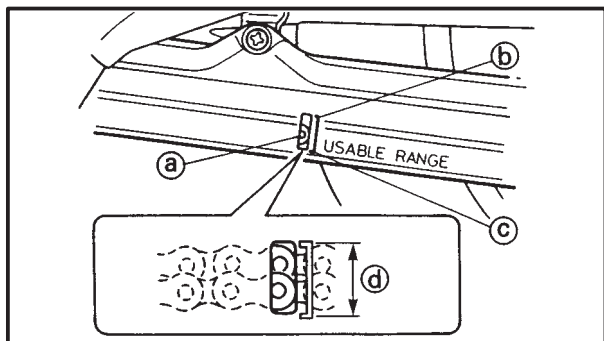


WARNING

- Securely support the motorcycle so that there is no danger of it falling over.
- Stand the motorcycle on its centerstand.

DRIVE CHAIN SLACK ADJUSTMENT

**INSP
ADJ**



1. Check:

- Drive chain slack
Out of specification → Adjust.



Drive chain slack:
25 × 35 mm

- (a) Check window
- (b) Adjustable limit
- (c) Usable limit
- (d) Usable range

2. Adjust:

- Drive chain slack

A Standard

B Useful limit

Adjustment steps:

- Loosen the axle nut ①.
- Turn the chain adjusters ② clockwise or counterclockwise until the specified drive chain slack is obtained.

Clockwise → Chain slack is decreased.

Counter-clockwise → Chain slack is increased.

NOTE:

Turn each chain adjuster exactly the same amount to maintain correct axle alignment.
(There are marks (e) on each chain adjuster. Use them when adjusting the slack for proper alignment.)

- Before tightening the axle nut to specification, make sure that there is no clearance at the adjuster (or the swingarm end) on both sides by pushing the wheel forward.



Rear wheel axle:
65 Nm (6.5 m•kg)

CAUTION:

Do not adjust the drive chain slack above the usable range (b) of check window (a).



SR304130

STEERING HEAD INSPECTION

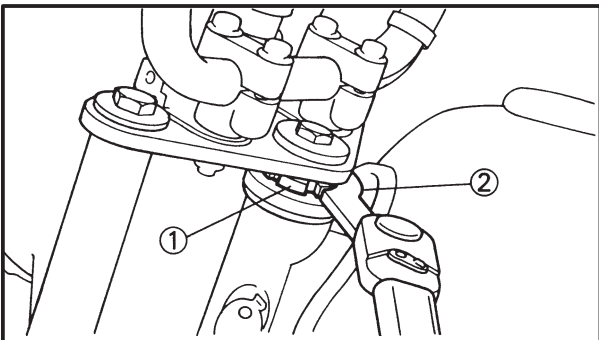
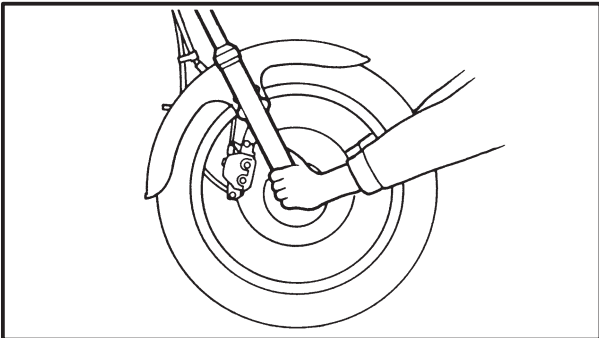
⚠ WARNING

Securely support the motorcycle so that there is no danger of it falling over.

1. Stand the motorcycle on a level surface.

NOTE:

Stand the motorcycle on its centerstand.



2. Elevate the front wheel by placing a suitable stand under the engine.

3. Check:

✳Steering assembly bearings
Grasp the bottom of the lower front fork tubes and gently rock the fork assembly.
Looseness → Adjust the steering head.

4. Adjust:

✳Steering head

Adjustment steps:

✳Tighten the ring nut ① using the ring nut wrench ②.
✳Loosen the ring nut completely, then tighten it.

NOTE:

When tighten the ring nut, should be steady the ball bearings and steering shaft moving smoothly.



Ring nut wrench:
90890-01403



Steering ring nut:
1st step:
38 Nm (3.8 m·kg)
2nd step:
7 Nm (0.7 m·kg)

✳Check the steering head for looseness or binding by turning it all the way in both directions.

FRONT FORK INSPECTION/ REAR SHOCK ABSORBER ADJUSTMENT

**INSP
ADJ**

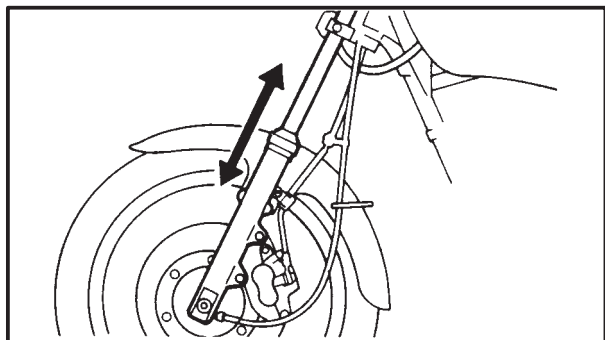


EB304140

FRONT FORK INSPECTION

⚠ WARNING

Securely support the motorcycle so that there is no danger of it falling over.



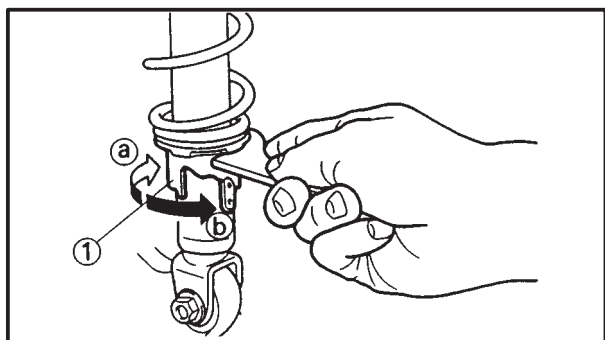
1. Stand the motorcycle on a level surface.
2. Check:
 - Inner tube
Scratches/damage → Replace.
 - Oil seal
Excessive oil leakage → Replace.
Hold the motorcycle upright and apply the front brake.
3. Check:
 - Operation
Push down hard on the handlebars several times.
Unsmooth operation → Repair.
Refer to "FRONT FORK" in CHAPTER 6.

YP304160

REAR SHOCK ABSORBER ADJUSTMENT

⚠ WARNING

- Always adjust each rear shock absorber preload to the same setting. Uneven adjustment can cause poor handling and loss of stability.
- Securely support the scooter so there is no danger of it falling over.



1. Adjust:
 - Spring preload
Turn the adjuster ring ① to direction ① or ②.

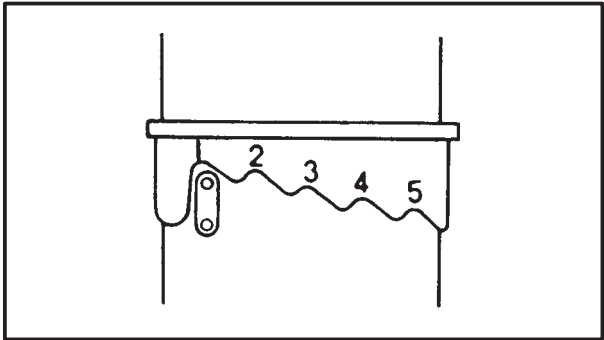
Adjustment steps:

- Turn the adjuster ring in or out.

Turning toward ① → Spring preload is increased.

Turning toward ② → Spring preload is decreased.

REAR SHOCK ABSORBER ADJUSTMENT/
TIRE INSPECTION



Adjustment numbers:	
Standard	1
Minimum	1
Maximum	5

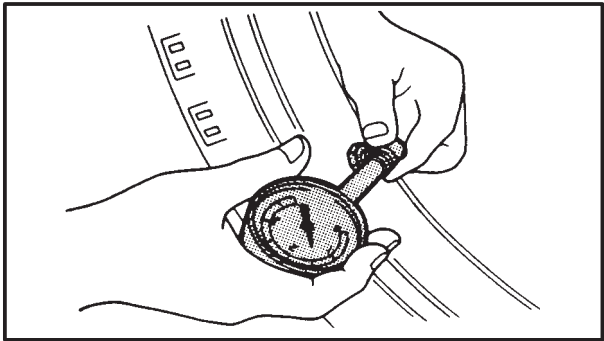
CAUTION:

- Never turn the adjuster beyond the maximum or minimum setting.
- Always adjust each shock absorber to the same setting.

EB304171

TIRE INSPECTION

1. Measure:
 - Tire inflation pressureOut of specification → Adjust.



! WARNING

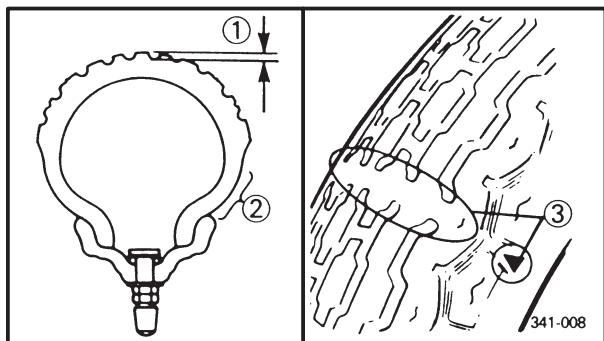
- Tire inflation pressure should only be checked and adjusted when the tire temperature equals the ambient air temperature. Tire inflation pressure and suspension must be adjusted according to the total weight of the cargo, rider, passenger and accessories (fairing, saddlebags, etc. if approved for this model), and according to whether the motorcycle will be operated at high speed or not.
- NEVER OVERLOAD THE MOTORCYCLE.**
- Operation of an overloaded motorcycle could cause tire damage, accident or injury.

Basic weight: With oil and full fuel tank	113 kg	
Maximum load*	164 kg	
Cold tire pres- sure	Front	Rear
Up to 90 kg load*	175 kPa (1.75 kg/cm ² , 1.75 bar)	200 kPa (2.0 kg/cm ² , 2.0 bar)
90 kg × maximum. load*	175 kPa (1.75 kg/cm ² , 1.75 bar)	25 kPa (2.25 kg/cm ² , 2.25 bar)

* Load is the total weight of the cargo, rider, passenger and accessories.

TIRE INSPECTION

INSP
ADJ



2. Inspect:

- ✱ Tire surfaces
- Wear/damage Replace.



**Minimum tire tread depth
(front and rear): 1.6 mm**

- ① Tread depth
- ② Side wall
- ③ Wear indicator

⚠ WARNING

- ✱ It is dangerous to ride with a worn-out tire. When the tire tread begins to show signs of wear, replace the tire immediately.
- ✱ Patching a punctured tube is not recommended. If it is absolutely necessary to do so, use great care and replace the tube as soon as possible with a good quality replacement tube.
- ✱ Do not use tubeless tires on a wheel designed for tube type tires only. Tire failure and personal injury may result from sudden deflation.

Tube type wheel	Tube type tire only
Tubeless type wheel	Tube type or tubeless tire.

- ✱ Be sure to install the correct tube when using tube type tires.
- ✱ After extensive tests, the tires listed below have been approved by Yamaha Motor Co., Ltd. for this model. No guarantee concerning handling characteristics can be given if a tire combination other than one approved by Yamaha is used on this motorcycle. The front and rear tires should always be by the same manufacturer and of the same design.

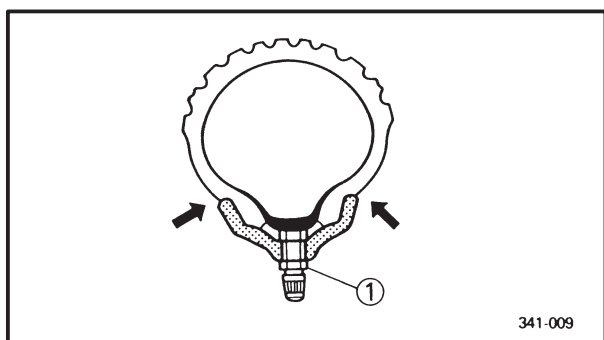
⚠ WARNING

After mounting a tire, ride conservatively for a while to give the tire time to seat itself properly in the rim. Failure to do so could lead to an accident with possible injury to the rider or damage to the motorcycle.

- 2. After a tire repair or replacement, be sure to tighten the valve stem locknut ① to specification.

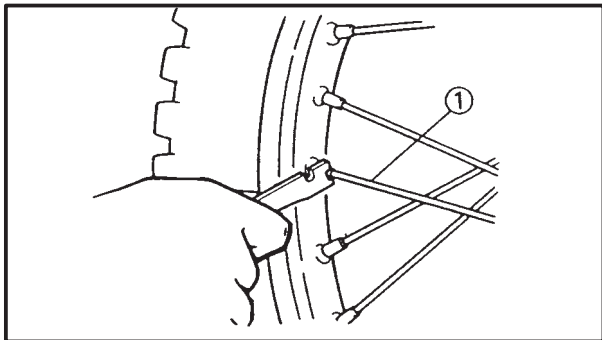


**Locknut:
1.5 Nm (0.15 m·kg)**



SPOKE INSPECTION AND TIGHTENING/ WHEEL INSPECTION

INSP
ADJ



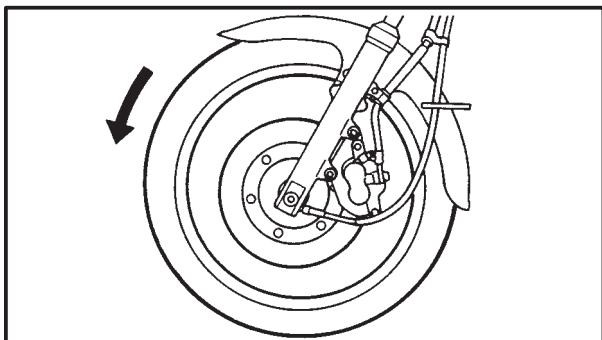
EB304190

SPOKE INSPECTION AND TIGHTENING

1. Inspect:
 - Spokes ①
Bending/damage → Replace.
Loose spoke → Retighten.
2. Tighten:
 - Spokes

NOTE:

Be sure to tighten the spokes before and after break-in.



Nipple:
2 Nm (0.2 m•kg)

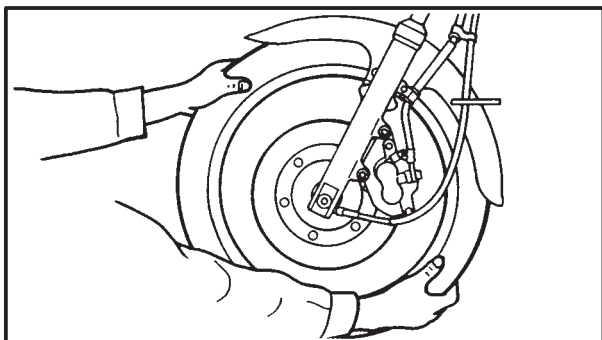
EB304180

WHEEL INSPECTION

1. Inspect:
 - Wheels
Damage/Bends → Replace.

NOTE:

Always balance the wheel when a tire or wheel has been changed or replaced.



⚠ WARNING

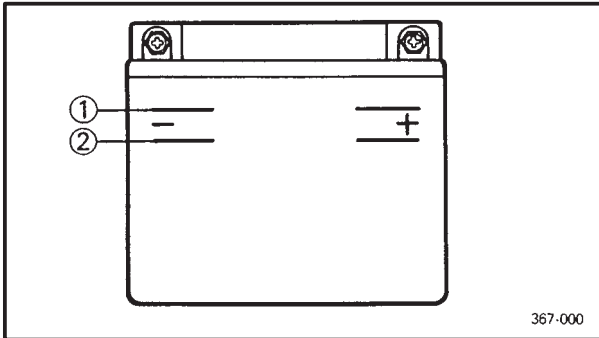
Never attempt to make any repairs to the wheel.



EB305001

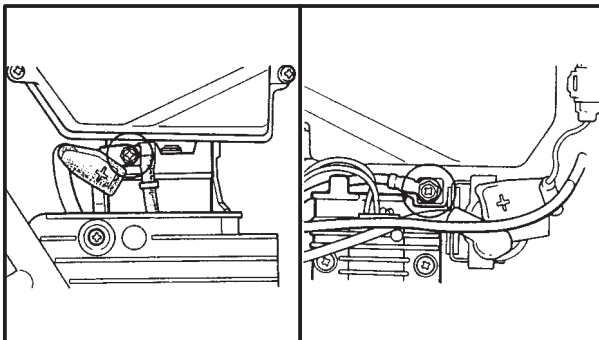
ELECTRICAL BATTERY INSPECTION

1. Remove:
 - Side covers (left and right)
Refer to "SIDE COVER, SEAT AND FUEL TANK" section.
2. Inspect:
 - Electrolyte level
Electrolyte level should be between the upper ① and lower ② level marks.
Electrolyte level is too low → Add electrolyte to proper level.



CAUTION:

Refill with distilled water only. Tap water contains minerals which are harmful to a battery.



3. Inspect:
 - Battery terminals
Dirt → Clean with a wire brush.
Poor connection → Correct.

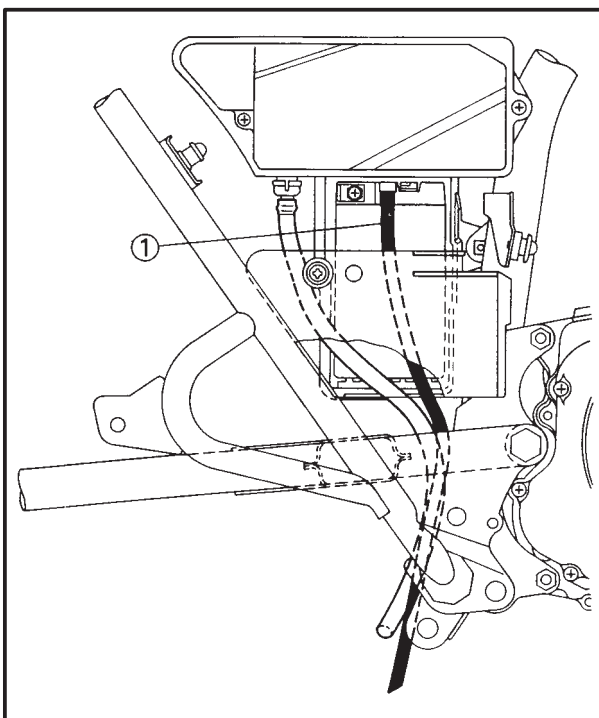
NOTE:

After cleaning the terminals, apply a light coat of grease to the terminals.

4. Inspect:
 - Breather hose
Obstruction → Remove.
Damage → Replace.

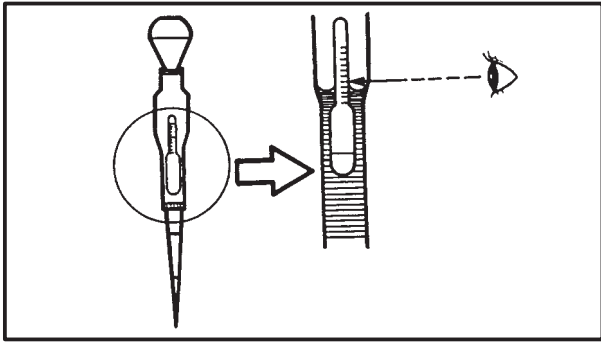
CAUTION:

When inspecting the battery, make sure that the breather hose is routed correctly. If the breather hose is positioned in such a way as to allow battery electrolyte or gas to come into contact with the frame, this could damage the motorcycle and ruin its finish.



5. Connect:
 - Breather hose ①
Make sure that the hose is properly attached and routed.
6. Check:
 - Specific gravity
Less than 1.280 → Recharge the battery.

Charging Current:
0.7 amps/10 hrs
Specific Gravity:
1.280 at 20°C



Replace the battery if:

- Battery voltage will not rise to a specific value or bubbles fail to rise during charging.
- Sulphation of one or more cells occurs, (as indicated by the plates turning white, or material accumulating in the bottom of the cell).
- Specific gravity readings after a long, slow charge indicate that one cell is charged lower than the rest.
- Warpage or buckling of plates or insulators is evident.

CAUTION:

Always charge a new battery before using it to ensure maximum performance.

! WARNING

Battery electrolyte is dangerous. It contains sulfuric acid which is poisonous and highly caustic.

Always follow these preventive measures:

- Avoid bodily contact with electrolyte as it can cause severe burns and permanent eye injury.
- Wear protective eye gear when handling or working near batteries.

Antidote (EXTERNAL):

- SKIN – Flush with water.
- EYES – Flush with water for 15 minutes and get immediate medical attention.

Antidote (INTERNAL):

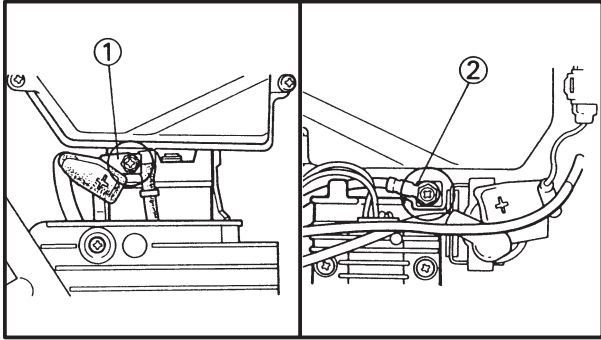
- Drink large quantities of water or milk followed with milk of magnesia, beaten egg or vegetable oil. Get immediate medical attention.
- Batteries generate explosive hydrogen gas.
- Always follow these preventive measures:
- Charge batteries in a well – ventilated area.
- Keep batteries away from fire, sparks or open flames (e.g., welding equipment, lighted cigarettes, etc.)
- DO NOT SMOKE when charging or handling batteries.

KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN.



BATTERY INSPECTION/FUSE INSPECTION

INSP
ADJ



7. Install:
 - ✱ Battery
8. Connect:
 - ✱ Battery leads

CAUTION:

Connect the positive lead ① first and then connect the negative lead ②.

9. Connect:
 - ✱ Breather hoseBe sure the hose is properly attached and routed.
Refer to "CABLE ROUTING" section.
10. Install:
 - ✱ Side covers (left and right)Refer to "SIDE COVER, SEAT AND FUEL TANK" section.

T305010

FUSE INSPECTION

CAUTION:

Always turn off the main switch when checking or replacing the fuse. Otherwise, a short circuit may occur.

1. Remove:
 - ✱ Side covers (left and right)Refer to "SIDE COVER, SEAT AND FUEL TANK" section.
- ✱ Fuse holder ①
2. Inspect:
 - ✱ Fuse

Inspection steps:

- ✱ Connect the pocket tester to the fuse and check it for continuity.

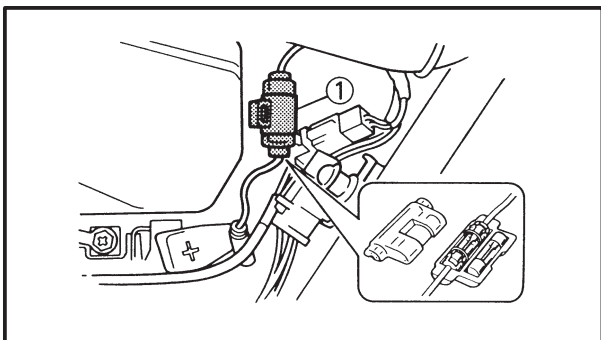
NOTE:

Set the tester selector to " $\Omega \times 1$ " position.



Pocket tester:
90890-03112

- ✱ If the tester is indicated at ∞ . Replace the fuse.





3. Replace:
- Blown fuse

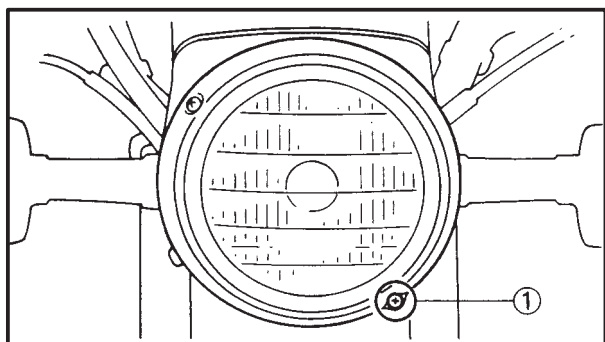
Replacement steps:

- Turn off the main switch.
- Install a new fuse with the proper current rating.
- Turn on switches to verify operation of related electrical devices.
- If the fuse blows again immediately, check the electrical circuit.

! WARNING

Never use a fuse with a rating other than that specified. Never use other materials in place of a fuse. An improper fuse may cause extensive damage to the electrical system, malfunction of lighting and ignition systems and could possibly cause a fire.

4. Install:
- Fuse holder
 - Side cover (left and right)
- Refer to "SIDE COVER, SEAT AND FUEL TANK" section.



EB305022

HEADLIGHT BEAM ADJUSTMENT

1. Adjust:
- Headlight beam (vertical)
- Loosen the bolt ① and adjust the headlight unit.

CHAPTER 4. ENGINE OVERHAUL

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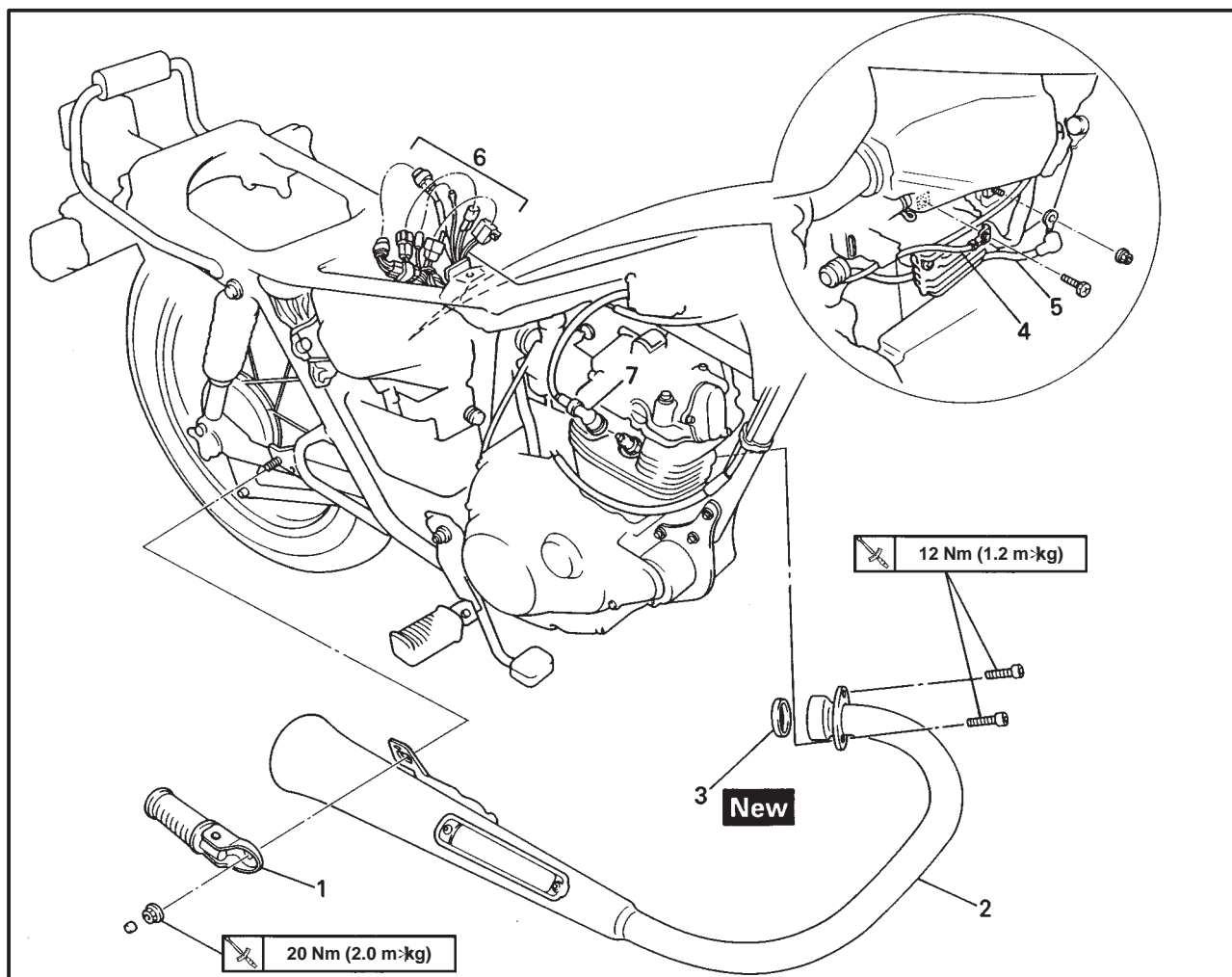


EB400000

ENGINE OVERHAUL

ENGINE REMOVAL

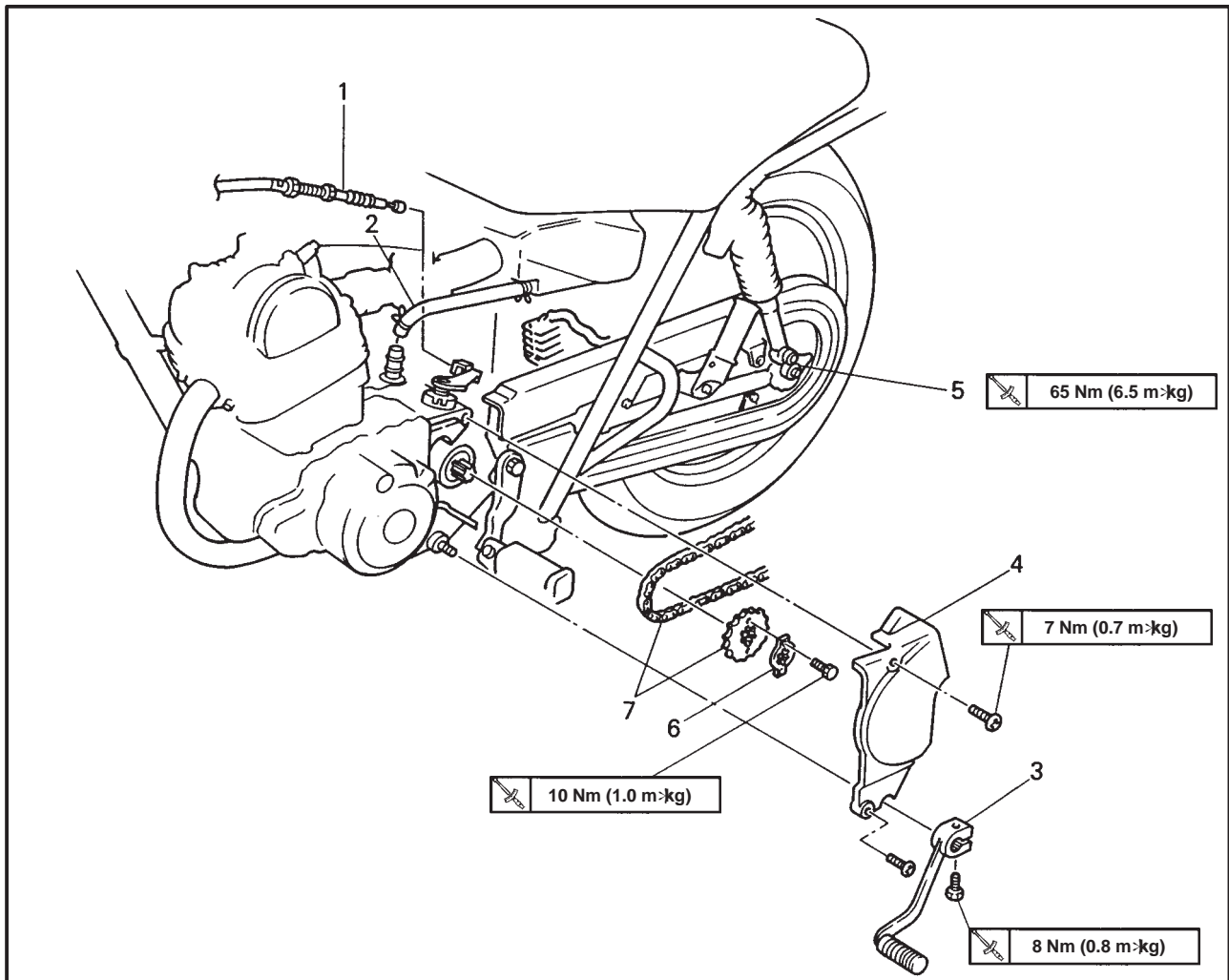
EXHAUST PIPE, STARTING MOTOR AND WIRE READ



Order	Job name/Part name	Q'ty	Remarks
	Exhaust pipe, starting motor and wire read removal		Remove the parts in order.
	Side cover, seat and fuel tank		Refer to "SIDE COVER, SEAT AND FUEL TANK" section in CHAPTER 3.
1	Rear foot rest (right)	1	
2	Exhaust pipe Ass'y	1	
3	Exhaust pipe gasket	1	
4	Ground lead	1	
5	Starting motor read	1	
6	CDI magneto read	1	
7	Plug cap	1	
			Reverse the removal procedure for installation.



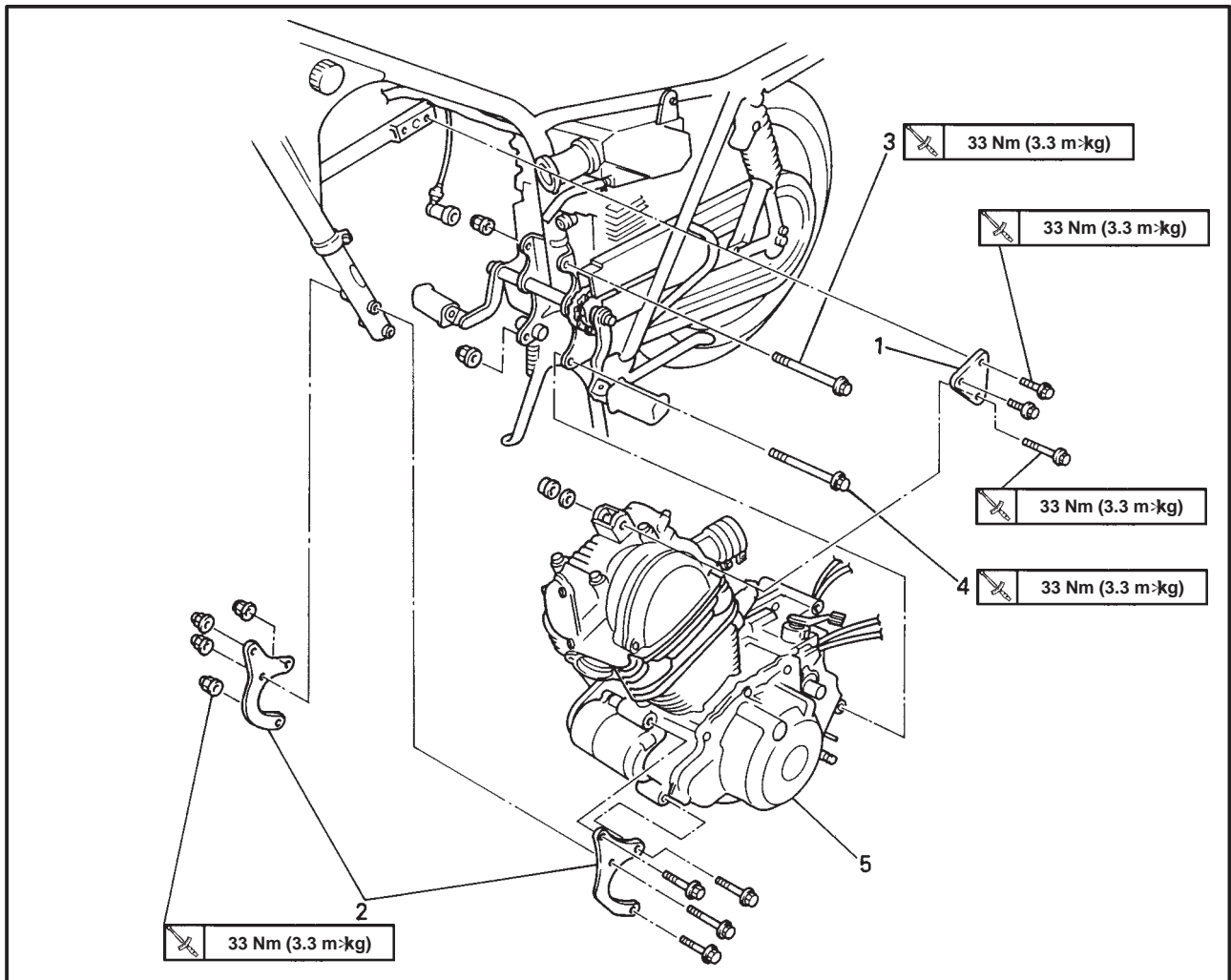
CARBURETOR, CLUTCH CABLE AND DRIVE CHAIN



Order	Job name/Part name	Q'ty	Remarks
	Carburetor, clutch cable and drive chain removal		Remove the parts in order.
	Carburetor		Refer to "CARBURETOR" section in CHAPTER 5.
1	Clutch cable	1	
2	Crankcase breather hose	1	
3	Shift pedal	1	
4	Drive sprocket cover	1	
5	Rear wheel axle nut	1	NOTE: Loosen the axle nut and slacken the drive chain.
6	Sprocket holder	1	
7	Drive sprocket/drive chain	1/1	Reverse the removal procedure for installation.



ENGINE

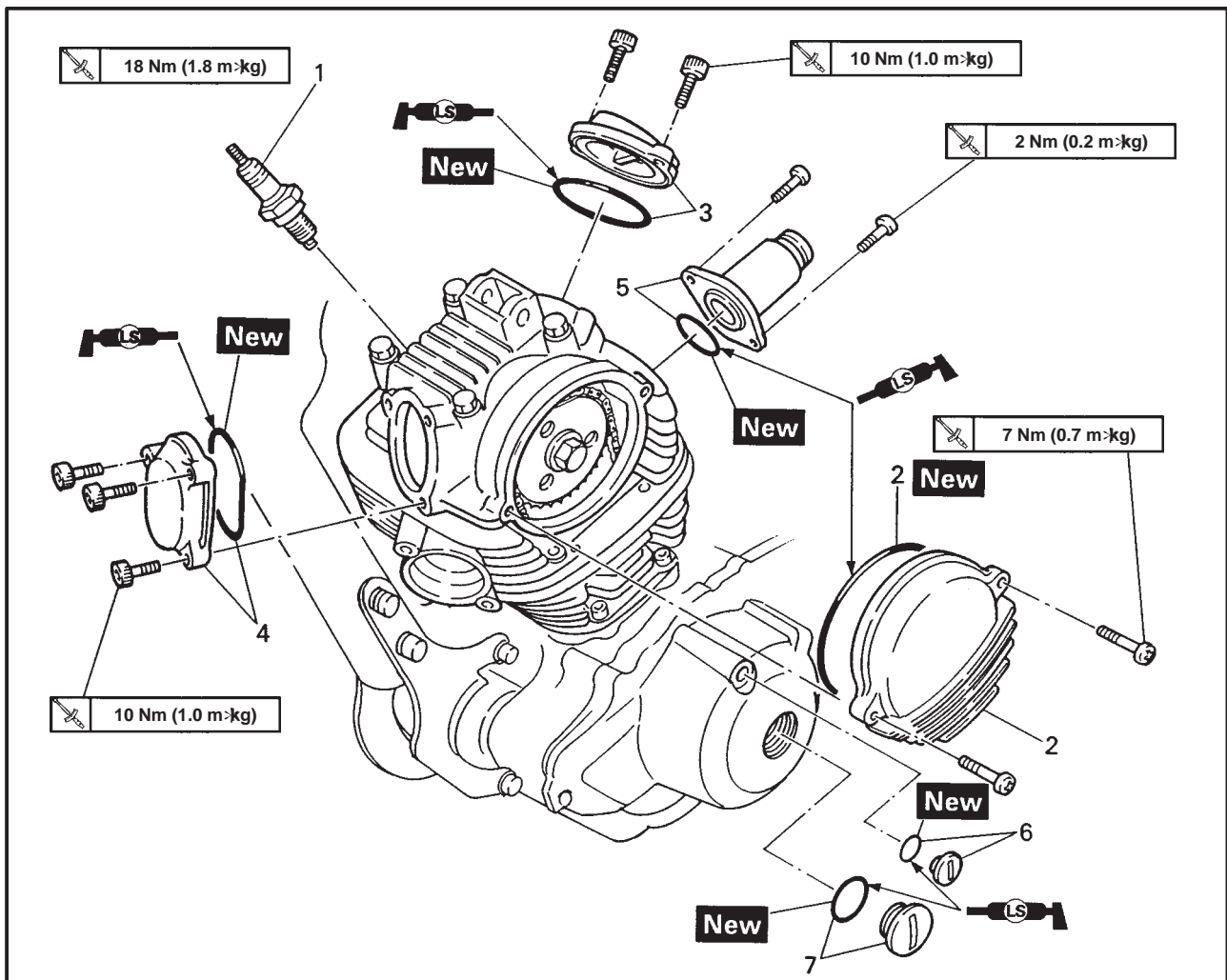


Order	Job name/Part name	Q'ty	Remarks
	Engine removal		
1	Engine stay (top)	1	Remove the parts in order. Securely support the motorcycle so there is no danger of it falling over.
2	Front engine stay	1	
3	Engine mount bolt (rear upper)	1	
4	Engine mount bolt (rear under)	1	
5	Engine	1	Reverse the removal procedure for installation.



CYLINDER HEAD

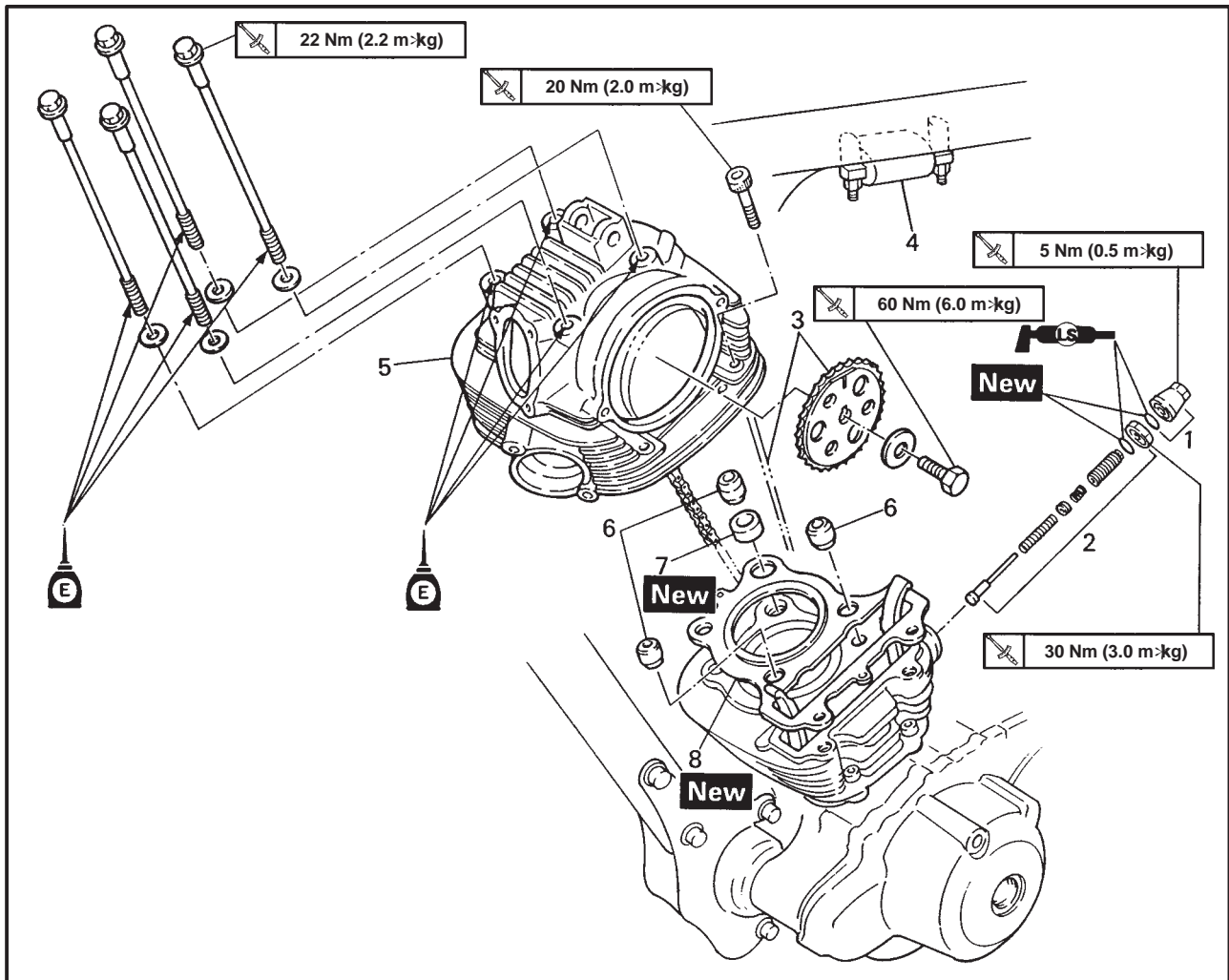
CAM SPROCKET COVER



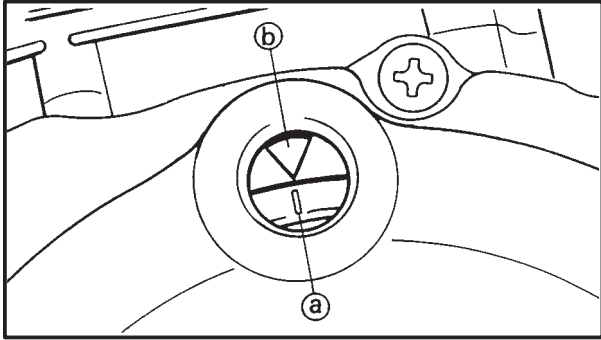
Order	Job name/Part name	Q'ty	Remarks
	Cam sprocket cover removal Side cover, seat and fuel tank		Remove the parts in order.
	Exhaust pipe assembly		<input type="checkbox"/> Refer to "SIDE COVER SEAT AND FUEL TANK REMOVAL" section in CHAPTER 3.
	Carburetor assembly		<input type="checkbox"/> Refer to "ENGINE REMOVAL" section in CHAPTER 4.
	Engine stay (top)		<input type="checkbox"/> Refer to "CARBURETOR" section in CHAPTER 5.
			<input type="checkbox"/> Refer to "ENGINE REMOVAL" section in CHAPTER 4.
1	Spark plug	1	
2	Cam sprocket cover/O-ring	1/1	
3	Valve cover (intake side)/O-ring	1/1	
4	Valve cover (exhaust side)/O-ring	1/1	
5	Carburetor joint/O-ring	1/1	
6	Timing mark cap/O-ring	1/1	
7	Center cap/O-ring	1/1	
			Reverse the removal procedure for installation.



CYLINDER HEAD



Order	Job name/Part name	Q'ty	Remarks
	Cylinder head removal		
1	Timing chain tensioner cap/O-ring	1/1	Remove the parts in order.
2	Timing chain tensioner assembly	1	
3	Cam sprocket/Timing chain	1/1	
4	Ignition coil	1	
5	Cylinder head	1	Refer to "CYLINDER HEAD REMOVAL/INSTALLATION" section.
6	Dowel pins	3	
7	Gasket	1	
8	Cylinder head gasket	1	
			Reverse the removal procedure for installation.



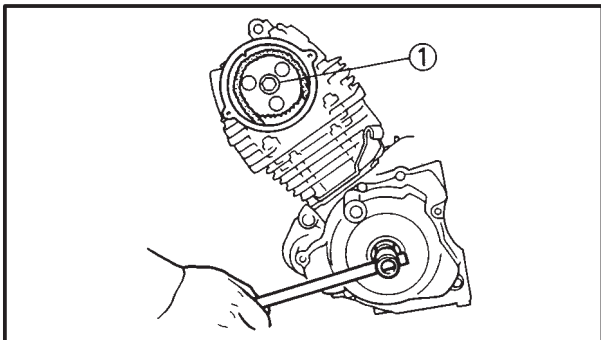
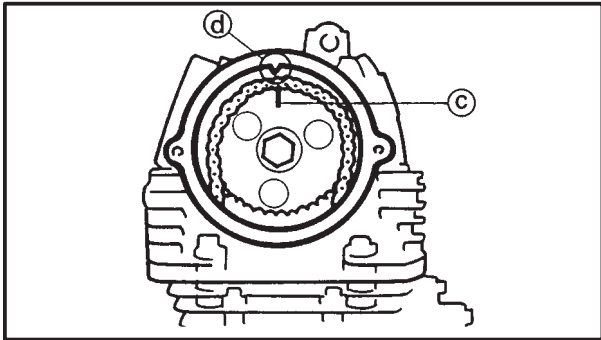
T401030

CYLINDER HEAD REMOVAL**1. Align:**

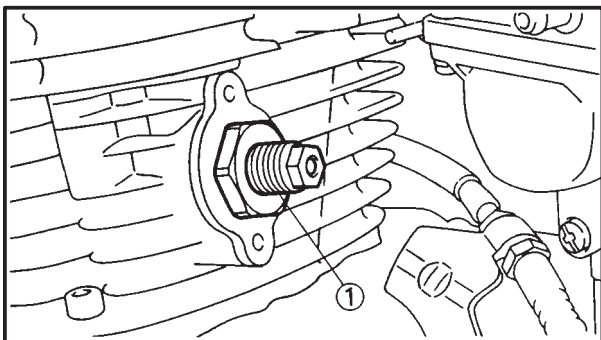
- ✳Slit (a) on the magneto
(with stationary pointer (b) on the crank case cover)

NOTE:

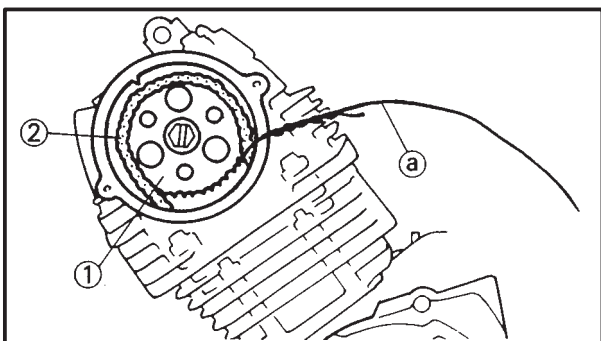
Turn the crank shaft counterclockwise with a wrench and align the "I" mark (c) with the cylinder head match mark (d) when the piston is at TDC on the compression stroke.

**2. Loosen:**

- ✳Cam sprocket bolt (1)

**3. Remove:**

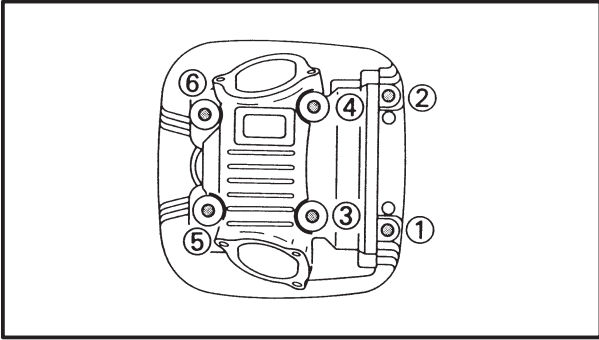
- ✳Timing chain tensioner assembly (1)

**4. Remove:**

- ✳Cam sprocket bolt
- ✳Cam sprocket (1)
- ✳Timing chain (2)

NOTE:

Fasten a safety wire to the timing chain to prevent it from falling into the crankcase.



5. Remove:
✱Cylinder head

NOTE:

- ✱Loosen the nuts in their proper loosening sequence.
- ✱Start by loosening each nut 1/2 turn until all are loose.

YP402000

CYLINDER HEAD INSPECTION

1. Eliminate:

- ✱Carbon deposits
(from combustion chambers)
Use a rounded scraper.

NOTE:

Do not use a sharp instrument to avoid damaging or scratching:

- ✱Spark plug threads
- ✱Valve seats

2. Inspect:

- ✱Cylinder head
Scratches/damage → Replace.

3. Measure:

- ✱Cylinder head warpage
Out of specification → Resurface.



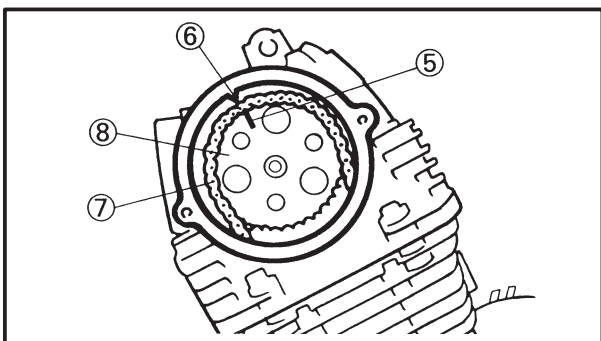
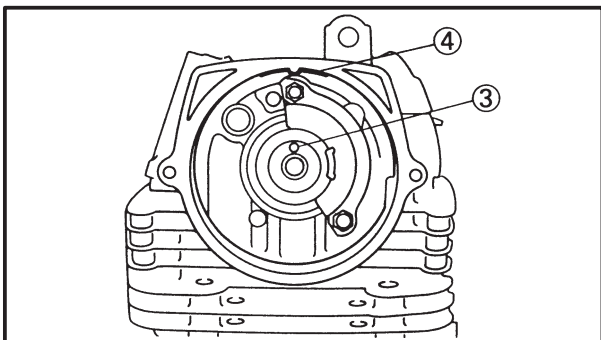
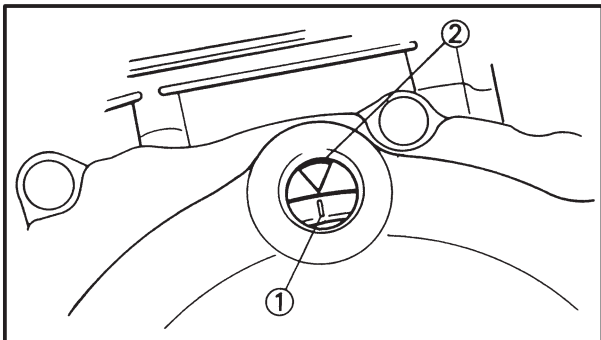
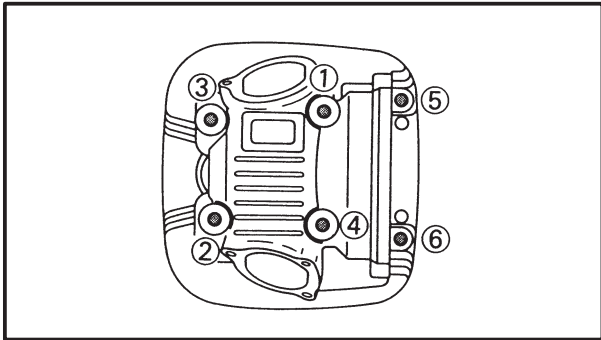
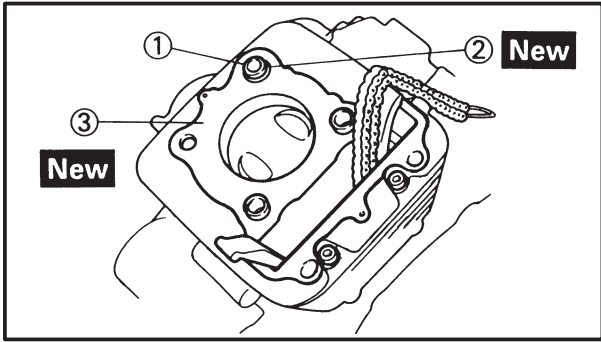
Cylinder head warpage:
Less than 0.03 mm

Warpage measurement and resurfacement steps:

- ✱Place a straightedge and a feeler gauge across the cylinder head.
- ✱Measure the warpage.
If the warpage is out of specification, resurface the cylinder head.
- ✱Place a 400 × 600 grit wet abrasive paper on the surface plate, and resurface the head using a figure-eight sanding pattern.

NOTE:

Rotate the cylinder head several times for an even resurfacement.



SR*****
CYLINDER HEAD INSTALLATION

1. Install:

- *Dowel pins ① **New**
- *Gasket ②
- *Gasket (cylinder head) ③ **New**

2. Install:

- *Cylinder head

	M8 (1 × 4)	22 Nm (2.2 m·kg)
	M8 (5 × 6)	20 Nm (2.2 m·kg)

NOTE:

- *Apply engine oil onto the nut threads.
- *Tighten the bolts starting with the lowest numbered one.

3. Install:

- *Cam sprocket
- *Timing chain

Installing steps:

- *Turn the crank shaft counterclockwise until the slit ① matches the stationary pointer ②.
- *Align the dowel pin ③ on the camshaft with the stationary pointer ④ on the cylinder head.
- *Align the "I" mark ⑤ on the cam sprocket with the stationary pointer ⑥ on the cylinder head.
- *Fit the timing chain ⑦ onto cam sprocket ⑧ and install the cam sprocket on the camshaft.

NOTE:

When installing the cam sprocket, keep the timing chain as tight as possible on the exhaust side.

CAUTION:

Do not turn the crankshaft during installation of the camshaft. Damage or improper valve timing will result.

- *Remove the safety wire from the timing chain.



4. Install:
 - *Plate washer
 - *Bolt (timing chain)
 - *Timing chain tensioner assembly

5. Tighten:

- *Bolt (timing chain)

**NOTE:**

Install the bolt while holding the magneto mounting bolt with a wrench.

6. Check:

- *Magneto rotor slit
Align the stationary pointer with the crank-case cover (left).
- *Cam sprocket "I" mark
Align the stationary pointer with the cylinder head.
Out of alignment → Adjust.

7. Check:

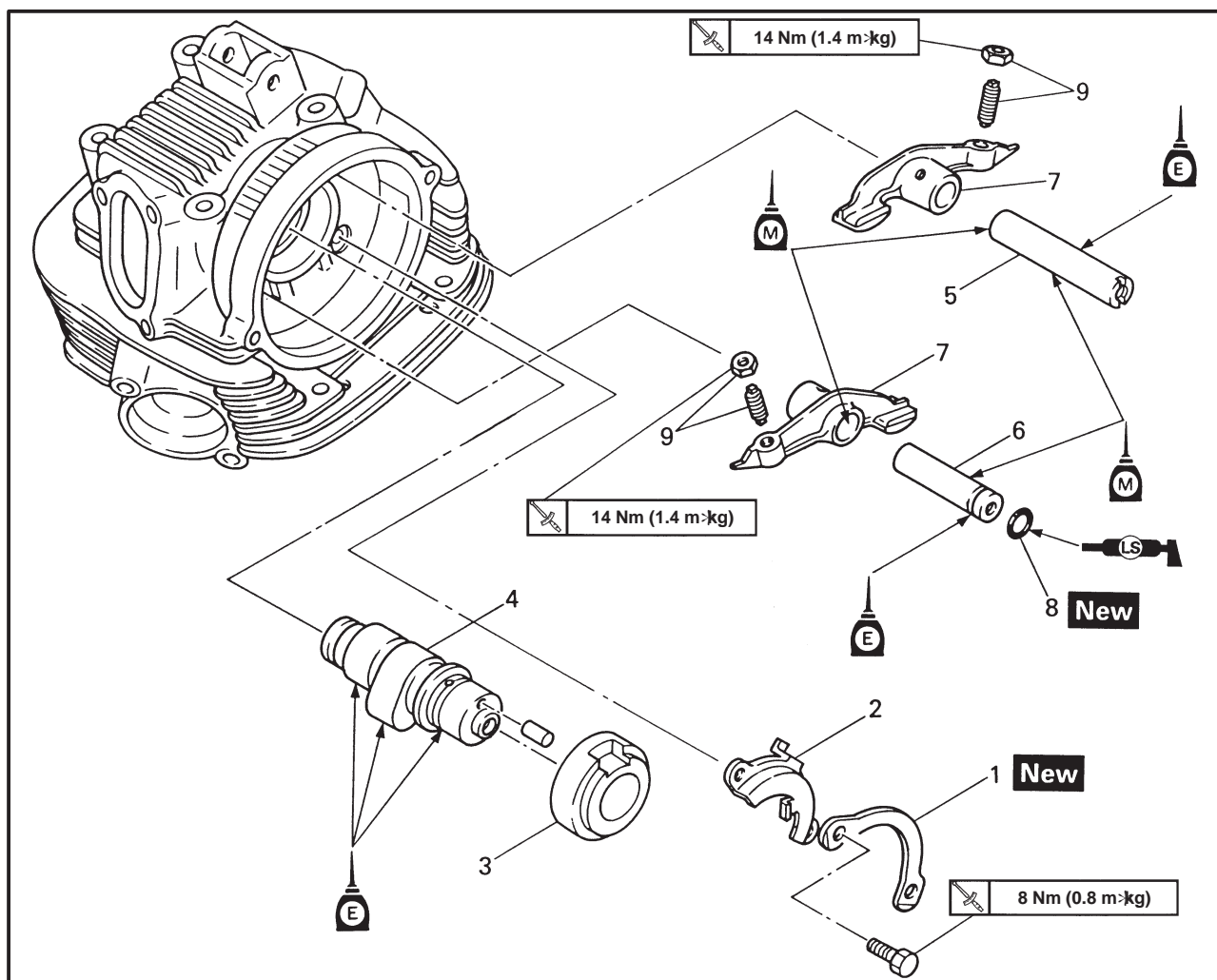
- *Timing chain tension
Refer to "TIMING CHAIN ADJUSTMENT" section in CHAPTER 3.
- *Valve clearance
Refer to "VALVE CLEARANCE ADJUSTMENT" section in CHAPTER 3.

CAM SHAFT AND ROCKER ARMS

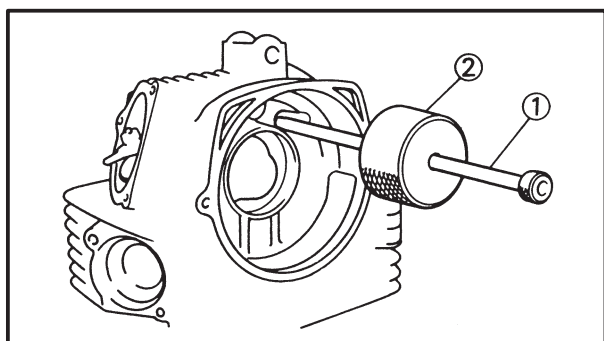
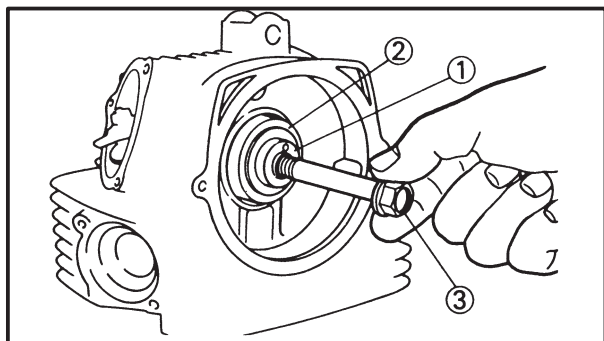
ENG



CAM SHAFT AND ROCKER ARMS



Order	Job name/Part name	Q'ty	Remarks
	Cam shaft and rocker arm removal		Remove the parts in order. Refer to the "CYLINDER HEAD" section.
1	Cylinder head	1	Refer to the "CAMSHAFT AND ROCKER ARM INSTALLATION" section.
2	Lock washer	1	
3	Plate	1	Refer to the "ROCKER ARM AND ROCKER ARM SHAFT REMOVAL/ CAMSHAFT AND ROCKER ARM INSTALLATION" section.
4	Collar	1	
5	Cam shaft	1	Reverse the removal procedure for installation.
6	Rocker arm shaft (intake side)	1	
7	Rocker arm shaft (exhaust side)	1	
8	Rocker arm	2	
9	O-ring	1	
	Nut/Adjuster	2/2	



SR*****

ROCKER ARM AND ROCKER ARM SHAFT REMOVAL

1. Remove:

- ✧Camshaft ①
- ✧Collar (camshaft) ②

NOTE:

Use 10 mm bolt ③ to remove the camshaft.

2. Remove:

- ✧Rocker arm shaft (intake)
- ✧Rocker arm shaft (exhaust)

NOTE:

Attach a rocker arm shaft puller bolt ① and weight ② to the rocker arm shaft and slide out the shaft.



Rocker arm shaft puller bolt:
90890-01083
Weight:
90890-01084

YP402052

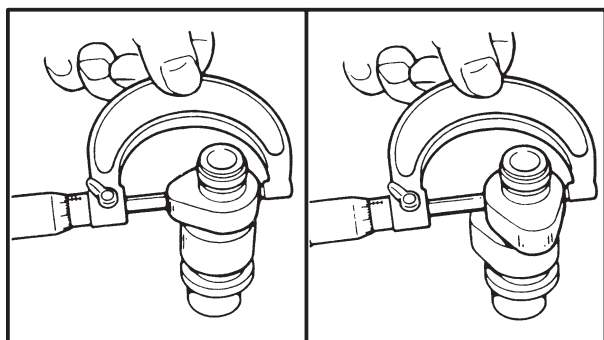
CAMSHAFT INSPECTION

1. Inspect:

- ✧Cam lobes
Pitting/Scratches/Blue discoloration → Replace.

2. Measure:

- ✧Cam lobes length [A] and [B].
Out of specification → Replace.



Cam lobes length:

Intake:

[A] 36.537 × 36.637 mm

<Limit: 36.45 mm>

[B] 30.13 × 30.231 mm

<Limit: 30.05 mm>

Exhaust:

[A] 36.577 × 36.677 mm

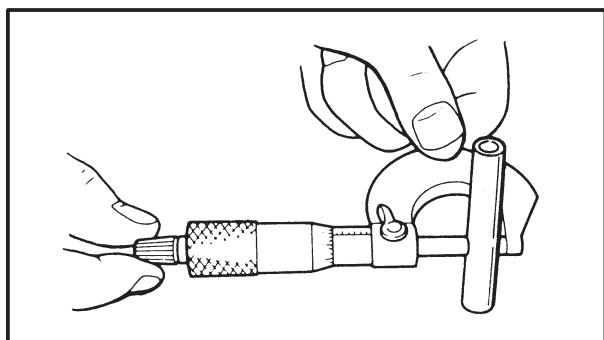
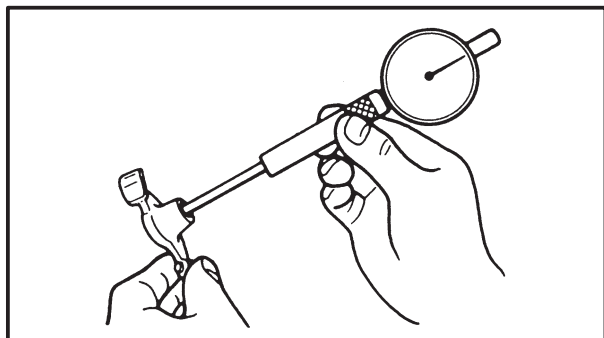
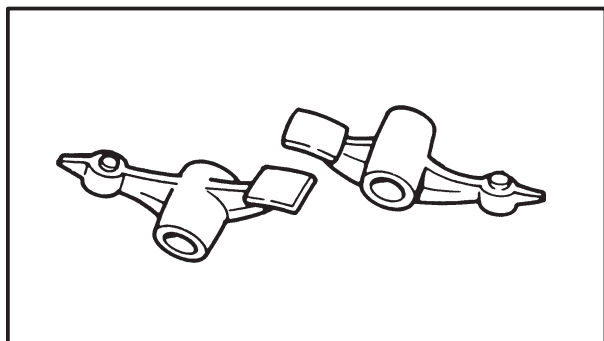
<Limit: 36.49 mm>

[B] 30.214 × 30.314 mm

<Limit: 30.13 mm>

3. Inspect:

- ✧Camshaft oil passage
Stuffed → Blow out oil passage with compressed the air.



YP402060

ROCKER ARMS AND ROCKER ARM SHAFTS INSPECTION

1. Inspect:

- ✳Rocker arm shafts
- ✳Rocker arms
- Wear/Pitting/Scratches/Blue discoloration
→ Replace.

Inspection steps:

- ✳Inspect the two contact areas on the rocker arms for signs of unusual wear.
- ✳Rocker arm shaft hole.
- ✳Cam-lobe contact surface.
- Excessive wear → Replace.
- ✳Inspect the surface condition of the rocker arm shafts.
- Pitting/scratches/blue discoloration → Replace or check lubrication.
- ✳Measure the inside diameter a of the rocker arm holes.
- Out of specification → Replace.



Inside diameter (rocker arm):
12.000 × 12.018 mm
<Limit: 12.036 mm>

- ✳Measure the outside diameter of the rocker arm shafts.
- Out of specification → Replace.



Outside diameter (rocker arm shaft):
11.985 × 11.991 mm
<Limit: 11.950 mm>

SR*****

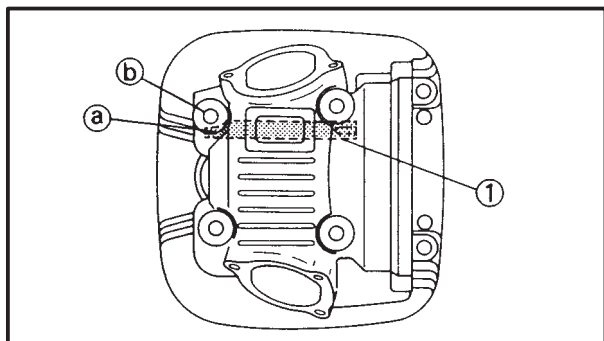
CAMSHAFT AND ROCKER ARM INSTALLATION

1. Lubricate:

- ✳Camshaft



Camshaft:
Molybdenum disulfide oil
Camshaft bearing:
Engine oil



2. Apply:

- ✧ Molybdenum disulfide oil
(onto the rocker arm and rocker arm shaft)



Molybdenum disulfide oil

3. Install:

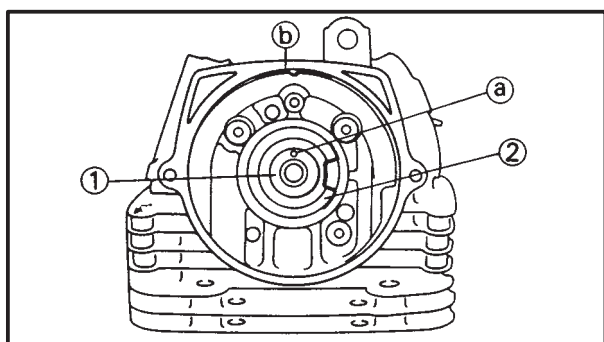
- ✧ Rocker arm
- ✧ Rocker arm shaft ①

NOTE:

- ✧ Apply engine oil onto the outside of the rocker arm shaft and apply molybdenum disulfide oil onto the inside of the rocker arm.
- ✧ Install the rocker arm shaft (intake), match the cut away ① and bolt hole ②.

CAUTION:

- ✧ Make sure that the rocker shaft install direction.
- ✧ Install the rocker arm shaft into the thread side for the out.

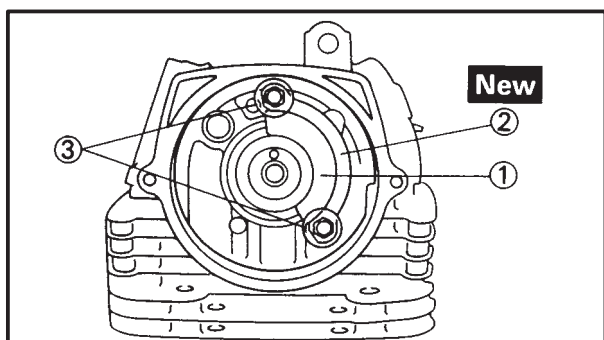


4. Install:

- ✧ Camshaft ①
- ✧ Collar ②

NOTE:

- ✧ Apply engine oil onto the cam profile face and journal face.
- ✧ Install the camshaft, match the dowel pin ① and cylinder head mark ②.



5. Install:

- ✧ Plate ①
- ✧ Lock washer ② **New**
- ✧ Bolt ③



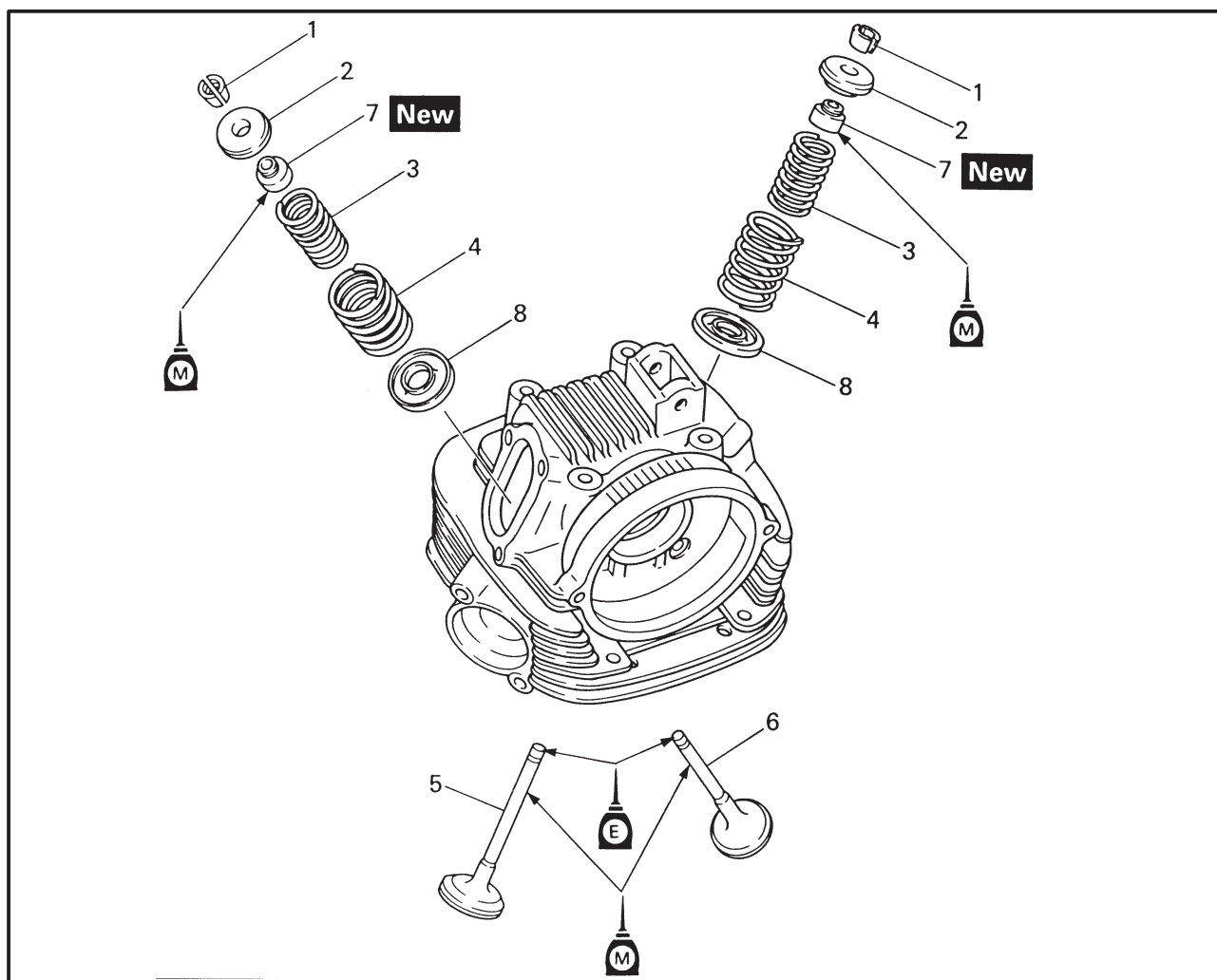
8 Nm (0.8 m·kg)

NOTE:

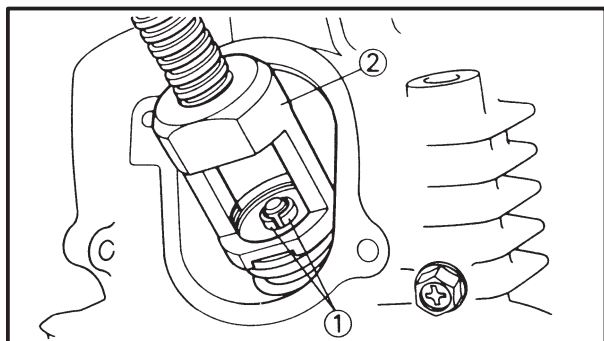
After tighten the bolt, bend the end of the rock washer.



VALVES AND VALVE SPRINGS



Order	Job name/Part name	Q'ty	Remarks
	Valves and valve springs removal		
	Cylinder head		Remove the parts in order.
	Rocker arm, Camshaft		Refer to "CYLINDER HEAD" section.
1	Valve cotter pins	4	Refer to "CAMSHAFT AND ROCKER ARMS" section.
2	Spring retainer	2	Refer to "VALVES AND VALVE SPRINGS REMOVAL/INSTALLATION" section.
3	Valve spring (inner)	2	
4	Valve spring (outer)	2	
5	Valve (intake)	1	
6	Valve (exhaust)	1	Refer to "VALVES AND VALVE SPRINGS INSTALLATION" section.
7	Valve guide (stem seal)	2	
8	Spring seat	2	Reverse the removal procedure for installation.



YP401150

VALVES AND VALVE SPRINGS REMOVAL

1. Remove:

✳Valve cotteners ①

NOTE:

Attach a valve spring compressor and attachment ② between the valve spring retainer and cylinder head to remove the valve cotteners.

CAUTION:

Do not compress so much as to avoid damage to the valve spring.



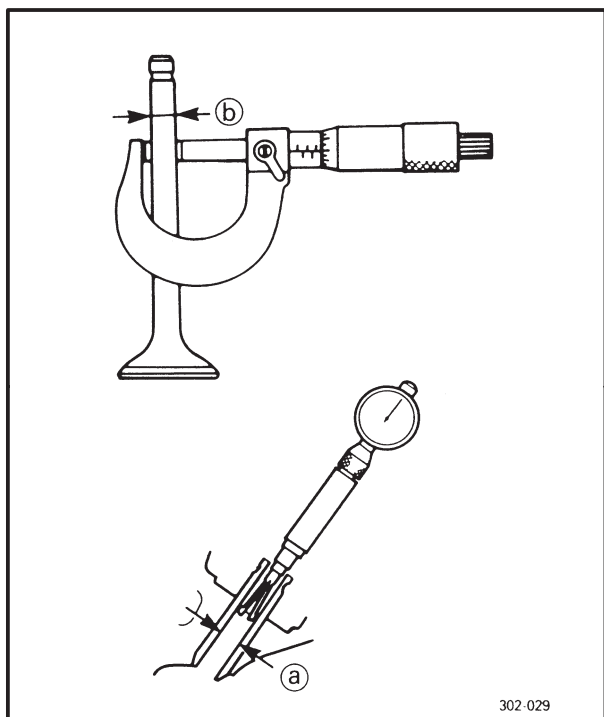
Valve spring compressor:

90890-01253

Valve spring compressor

attachment:

90890-04108



NB402010

VALVES AND VALVE GUIDES

1. Measure:

✳Stem-to-guide clearance

Stem-to-guide clearance =

valve guide inside diameter ① –

valve stem diameter ②

Out of specification → Replace the valve guide.



Clearance (stem to guide):

Intake:

0.010 × 0.037 mm

<Limit: 0.08 mm>

Exhaust:

0.025 × 0.052 mm

<Limit: 0.10 mm>

2. Replace:

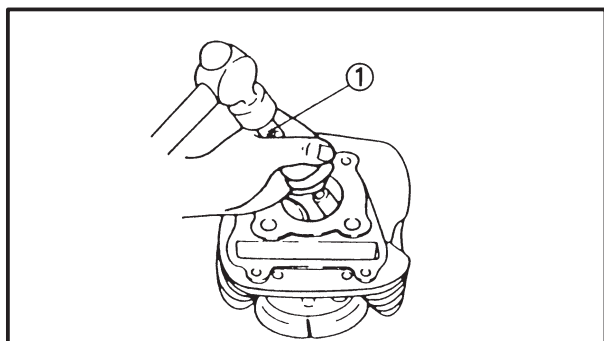
✳Valve guide

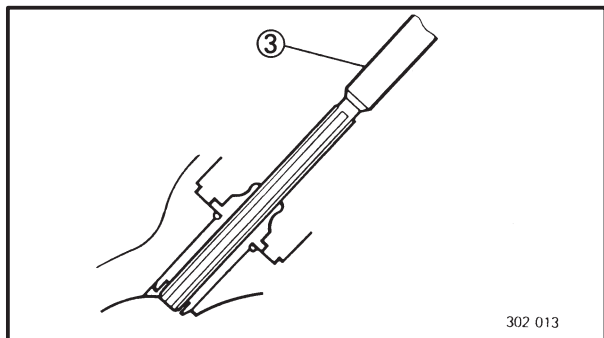
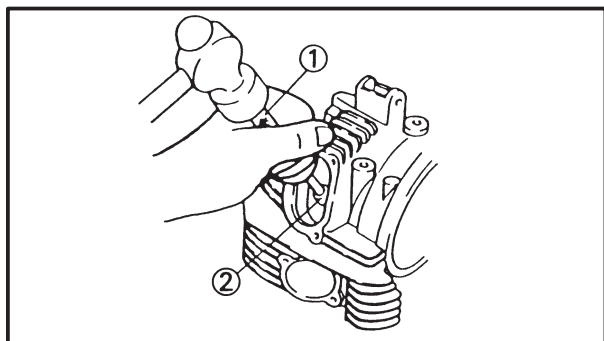
Replacement steps:

NOTE:

Heat the cylinder head in an oven to 100 C to ease guide removal and installation and to maintain correct fit.

✳Remove the valve guide using a valve guide remover ①.





- ✱ Install the new valve guide using a valve guide installer (2) and valve guide remover (1).
- ✱ After installing the valve guide, bore the valve guide using a valve guide reamer (3) to obtain proper stem-to-guide clearance.



Valve guide remover (6 mm):

90890-04064

Valve guide installer (6 mm):

90890-04065

Valve guide reamer (6 mm):

90890-04066

NOTE:

Reface the valve seat after replacing the valve guide.

3. Eliminate:

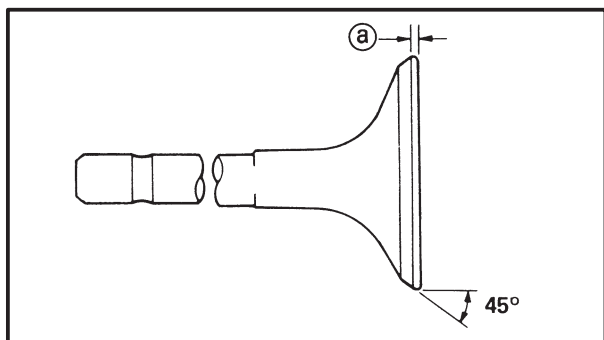
- ✱ Carbon deposits (from the valve face)

4. Inspect:

- ✱ Valve face
Pitting/wear → Grind the face.
- ✱ Valve stem end
Mushroom shape or diameter larger than the body of the stem → Replace.

5. Measure:

- ✱ Margin thickness (a)
Out of specification → Replace.



Margin thickness:

Intake

0.8 × 1.2 mm

Exhaust

0.8 × 1.2 mm

6. Measure:

- ✱ Runout (valve stem)
Out of specification → Replace.

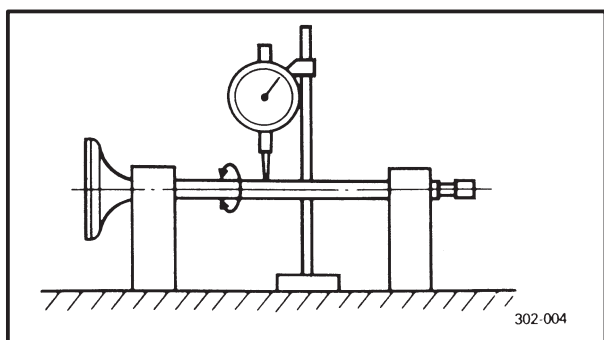


Runout:

Less than 0.03 mm

NOTE:

- ✱ Always replace the guide when installing a new valve.
- ✱ Always replace the oil seal if the valve is removed or replaced.

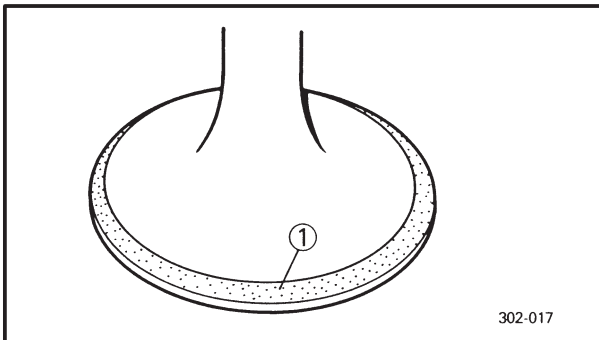
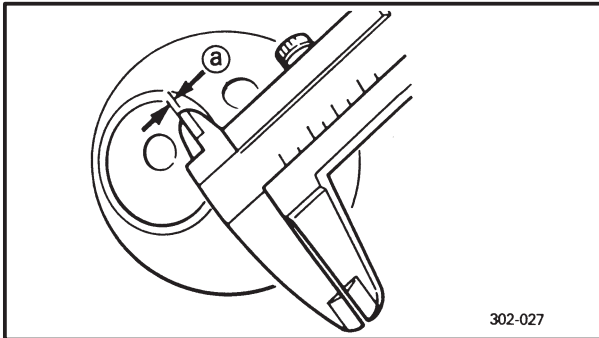





EB402020

VALVE SEATS INSPECTION

1. Eliminate:
 - ✳Carbon deposits
(from the valve face and valve seat)
2. Inspect:
 - ✳Valve seats
Pitting/wear → Reface the valve seat.
3. Measure:
 - ✳Valve seat width (a)
Out of specification → Reface the valve seat.



	Valve seat width: Intake: $0.9 \times 1.1 \text{ mm}$ <Limit: 1.6 mm> Exhaust: $0.9 \times 1.1 \text{ mm}$ <Limit: 1.6 mm>
---	---

Measurement steps:

- ✳Apply Mechanic's blueing dye (Dykem) ① to the valve face.
- ✳Install the valve into the cylinder head.
- ✳Press the valve through the valve guide and onto the valve seat to make a clear pattern.
- ✳Measure the valve seat width. Where the valve seat and valve face made contact, blueing will have been removed.
- ✳If the valve seat is too wide, too narrow, or the seat is not centered, the valve seat must be re-placed.

EB402020

4. Lap:
 - ✳Valve face
 - ✳Valve seat

NOTE:

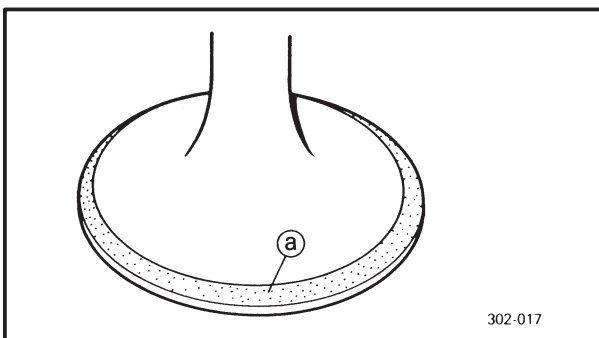
After replacing the valve seat, valve and valve guide, the valve seat and valve face should be lapped.

Lapping steps:

- ✳Apply a coarse lapping compound (a) to the valve face.

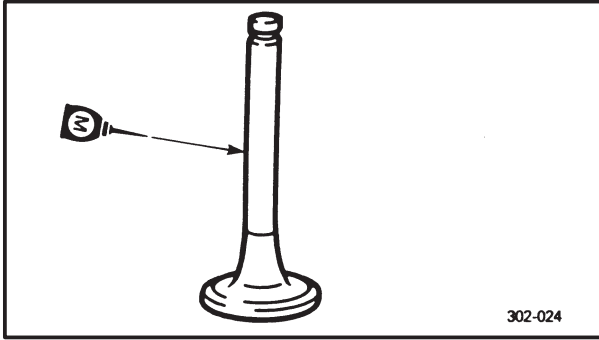
CAUTION:

Do not let compound enter the gap between the valve stem and the guide.

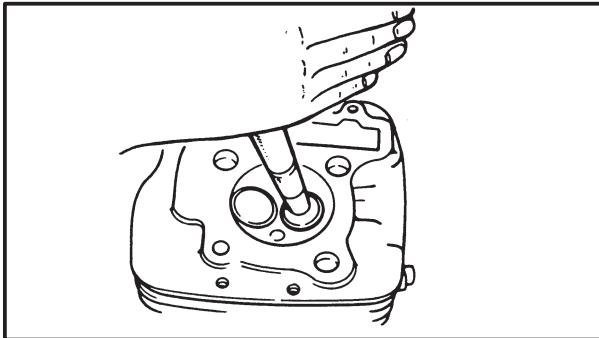


VALVES AND VALVE SPRINGS

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- ✱Apply molybdenum disulfide oil to the valve stem.
- ✱Install the valve into the cylinder head.



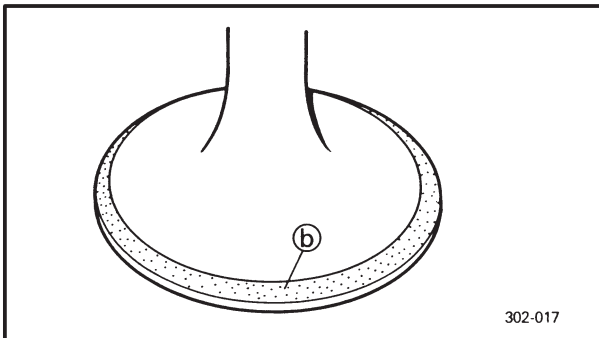
- ✱Turn the valve until the valve face and valve seat are evenly polished, then clean off all compound.



Valve lapper:
90890-04101

NOTE:

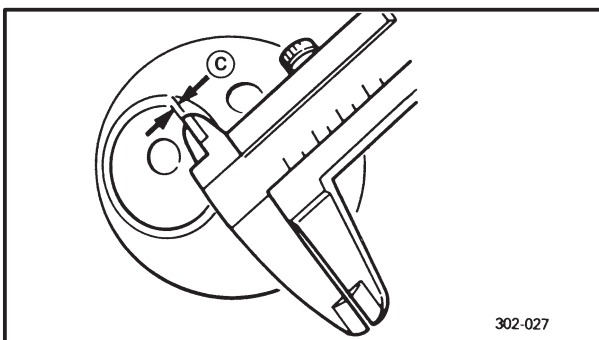
For best lapping results, lightly tap the valve seat while rotating the valve back and forth between your hand.



- ✱Apply a fine lapping compound to the valve face and repeat the above steps.

NOTE:

Make sure to clean off all compound from the valve face and valve seat after every lapping operation.



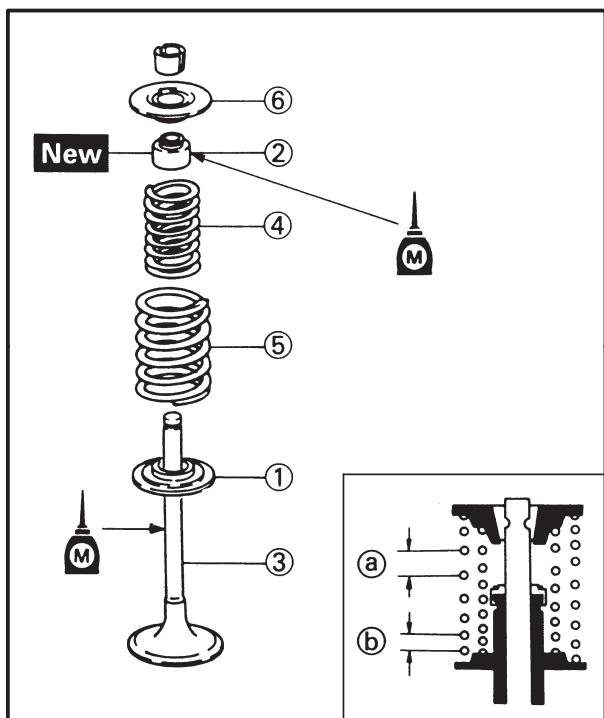
- ✱Apply Mechanic's blueing dye (Dykem) (b) to the valve face.
- ✱Install the valve into the cylinder head.
- ✱Press the valve through the valve guide and onto the valve seat to make a clear pattern.
- ✱Measure the valve seat width (c) again.

EB404032

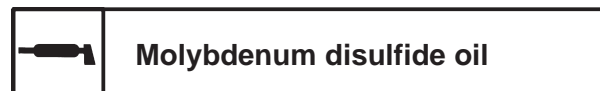
VALVES AND VALVE SPRINGS INSTALLATION

1. Deburr:

- ✱Valve stem end
Use an oil stone to smooth the stem end.



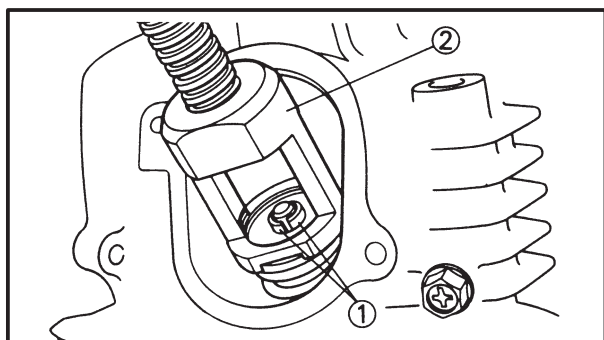
2. Apply:
 - *Molybdenum disulfide oil
(onto the valve stem ③ and oil seal ②)



3. Install:
 - *Valve spring seat ①
 - *Valve stem seal ② **New**
 - *Valve ③
(into the cylinder head)
 - *Valve spring ④
 - *Spring retainer ⑤

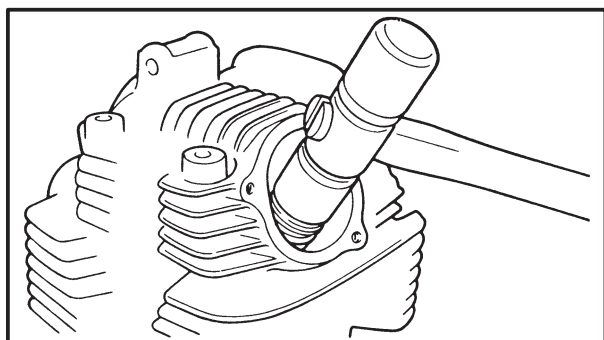
NOTE: _____
Install the valve spring with the larger pitch (a) facing upwards.

(b) Smaller pitch



4. Install:
 - *Valve cotteners ①

NOTE: _____
Install the valve cotteners while compressing the valve spring with a valve spring compressor and attachment ②.

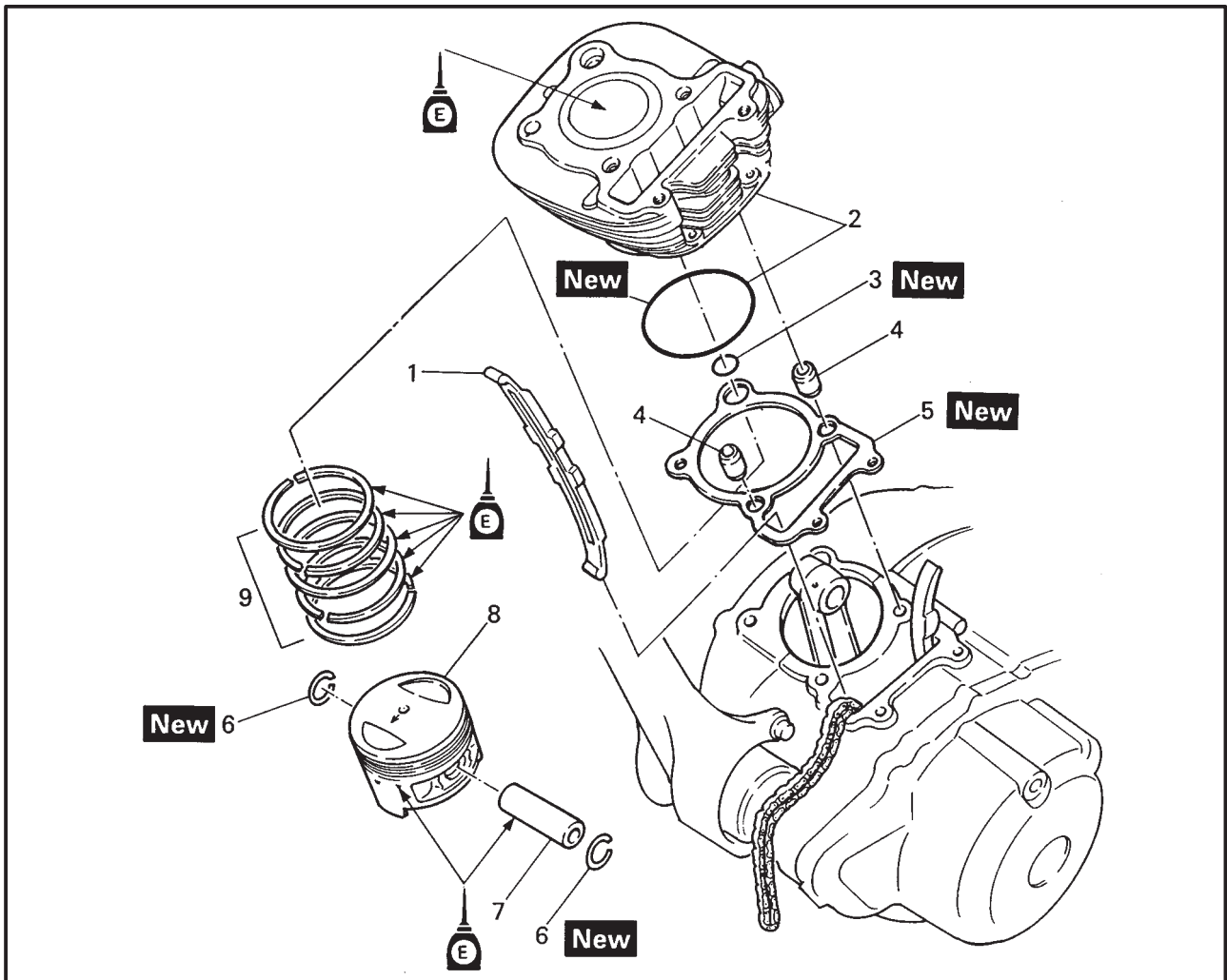


5. Secure the valve cotteners onto the valve stem by tapping lightly with a piece of wood.

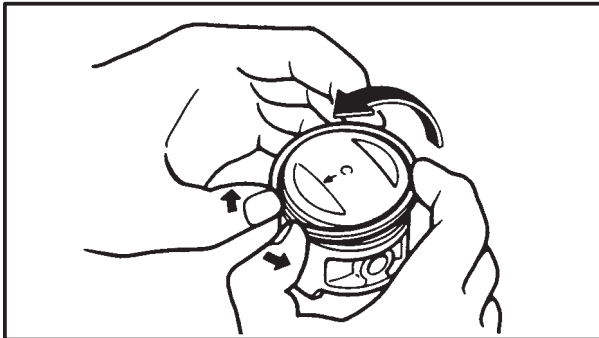
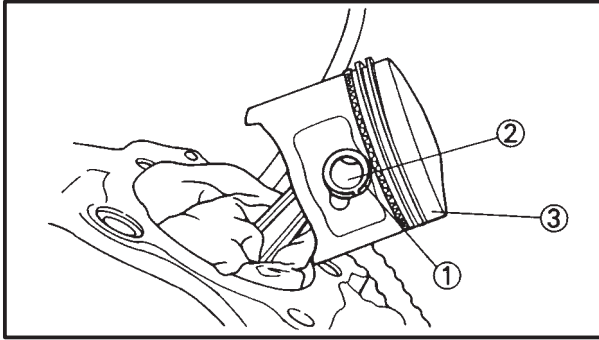
CAUTION: _____
Do not hit so much as to damage the valve.



CYLINDER AND PISTON



Order	Job name/Part name	Q'ty	Remarks
	Cylinder and piston removal		
	Cylinder head	1	Remove the parts in order. Refer to "CYLINDER HEAD" section.
1	Timing chain guide (exhaust side)	1	
2	Cylinder/O-ring	1/1	
3	O-ring	1	Refer to "PISTON RINGS, PISTON AND CYLINDER INSTALLATION" section.
4	Dowel pin	2	
5	Cylinder gasket	1	
6	Piston pin circlip	2	Refer to "PISTON AND PISTON RINGS REMOVAL" section.
7	Piston pin	1	
8	Piston	1	Refer to "PISTON RINGS, PISTON AND CYLINDER INSTALLATION" section.
9	Piston ring set	1	
			Reverse the removal procedure for installation.



yp*****

PISTON AND PISTON RINGS REMOVAL

1. Remove:

- ✳Piston pin circlip ①
- ✳Piston pin ②
- ✳Piston ③

NOTE:

Before removing the piston pin circlip, cover the crankcase opening with a clean towel or rag to prevent the circlip from falling into the crankcase cavity.

2. Remove:

- ✳Top ring
- ✳2nd ring
- ✳Oil ring

NOTE:

When removing the piston ring, open the end gap of the ring by fingers, and push up the other side of the ring.

EB402100

CYLINDER AND PISTON INSPECTION

1. Inspect:

- ✳Cylinder and piston walls
Vertical scratches → Rebore or replace the cylinder and the piston.

2. Measure:

- ✳Piston-to-cylinder clearance

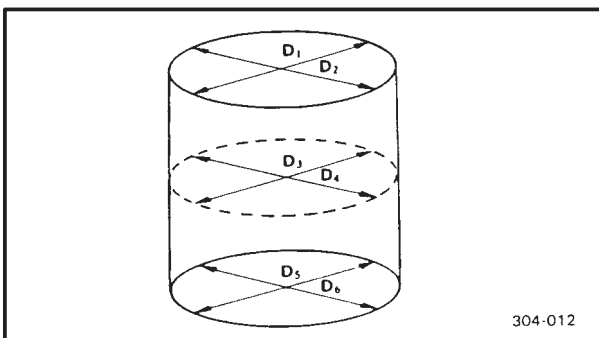
Measurement steps:

1st step:

- ✳Measure the cylinder bore "C" with a cylinder bore gauge.

NOTE:

Measure the cylinder bore "C" in parallel to and at right angles to the crankshaft. Then, find the average of the measurements.



304-012

CYLINDER AND PISTON

ENG



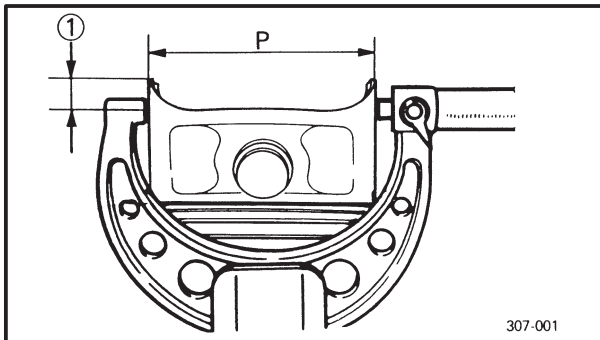
Cylinder bore "C"	57.00 × 57.02 mm
Taper limit "T"	0.05mm
Out of round "R"	0.01mm

"C" = Maximum D

"T" = (Maximum D₁ or D₂) –
(Maximum D₅ or D₆)

"R" = (Maximum D₁, D₃ or D₅)
– (Minimum D₂, D₄ or D₆)

✖ If out of specification, rebore or replace the cylinder, and replace the piston and piston rings as a set.



2nd step:

✖ Measure the piston skirt diameter "P" with a micrometer.

Ⓐ 5.5 mm from the piston bottom edge.

	Piston size P
Standard	56.960 × 56.975 mm
Overize 1	0.25 mm
Overize 2	0.50 mm

✖ If out of specification, replace the piston and the piston rings as a set.

3rd step:

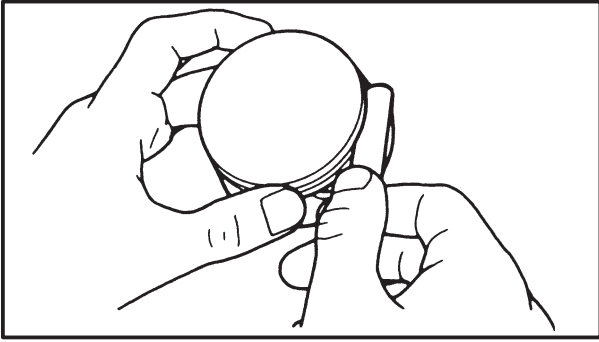
✖ Calculate the piston-to-cylinder clearance using the following formula:

Piston-to-cylinder clearance =
Cylinder bore "C" –
Piston skirt diameter "P"



Piston-to-cylinder clearance:
0.025 × 0.045 mm

✖ If out of specification, rebore or replace the cylinder, and replace the piston and piston rings as a set.



EB402110

PISTON RING INSPECTION

1. Measure:

※Side clearance

Out of specification → Replace the piston and the piston rings as a set.

NOTE:

Eliminate the carbon deposits from the piston ring grooves and rings before measuring the side clearance.



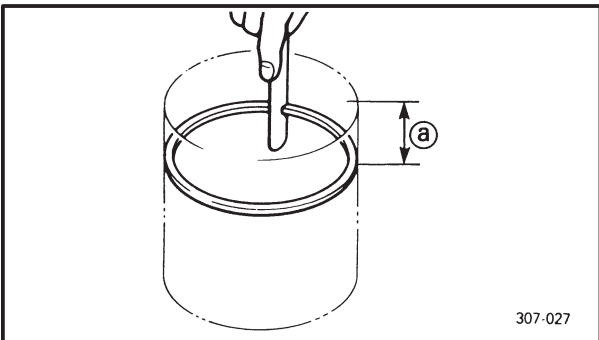
Side clearance:

Top ring: <Limit>

$0.03 \times 0.07 \text{ mm} <0.15 \text{ mm}>$

2nd ring: <Limit>

$0.02 \times 0.06 \text{ mm} <0.15 \text{ mm}>$



307-027

2. Position:

※Piston ring

(into the cylinder)

NOTE:

Push the ring with the piston crown so that the ring will be at a right angle to the cylinder bore.

① 5 mm

3. Measure:

※End gap

Out of specification → Replace.

NOTE:

You cannot measure the end gap on the expander spacer of the oil ring. If the oil ring rails show excessive gap, replace all three rings.



End gap:

Top ring: <Limit>

$0.15 \times 0.35 \text{ mm} <0.60 \text{ mm}>$

2nd ring: <Limit>

$0.15 \times 0.35 \text{ mm} <0.60 \text{ mm}>$

Oil ring:

$0.3 \times 0.9 \text{ mm}$



EB402120

PISTON PIN INSPECTION

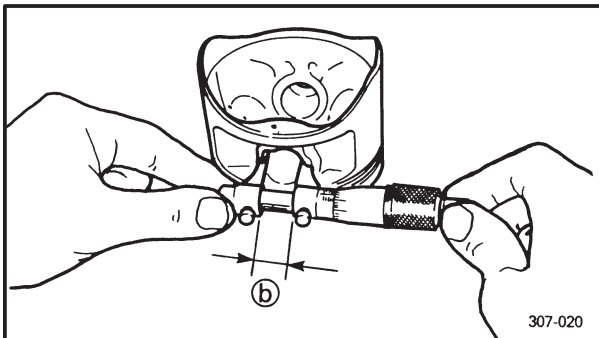
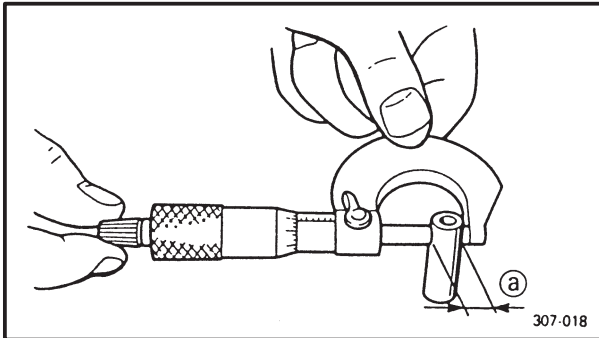
1. Inspect:

✳Piston pin

Blue discoloration/grooves → Replace, then inspect the lubrication system.

2. Measure:

✳Piston pin-to-piston clearance



Measurement steps:

✳Measure the piston pin outside diameter (a).
If out of specification, replace the piston pin.



Outside diameter (piston pin):

14.978 × 14.992 mm

<Limit> 14.975 mm

✳Measure the piston inside diameter (b).

✳Calculate the piston pin-to-piston clearance using the following formula:

Piston pin-to-piston clearance =

Bore size (piston pin) (b) –

Outside diameter (piston pin) (a)

✳If out of specification, replace the piston.



Clearance (piston pin-to-piston):

0.010 × 0.035 mm

EB404184

PISTON RINGS, PISTON AND CYLINDER INSTALLATION

1. Install:

✳Top ring ①

✳2nd ring ②

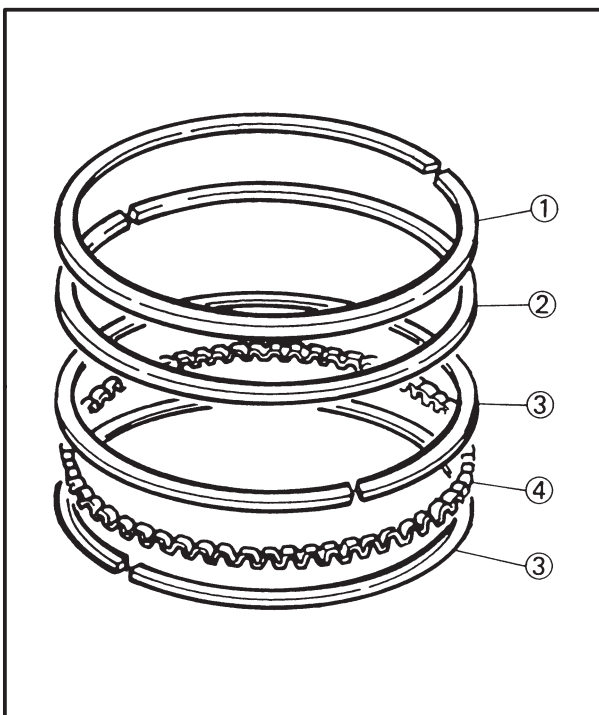
✳Side rails (oil ring) ③

✳Expander spacer (oil ring) ④

NOTE:

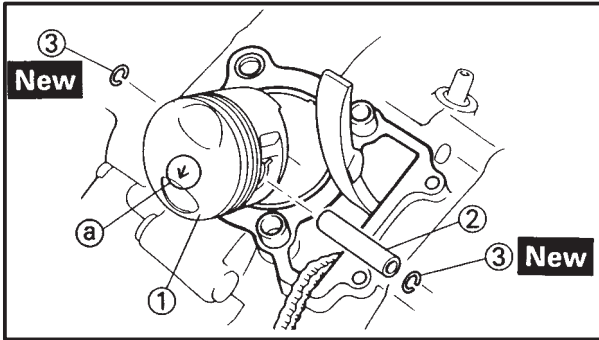
✳Make sure to install the piston rings so that the manufacturer's marks or numbers are located on the upper side of the rings.

✳Lubricate the pistons and piston rings liberally with engine oil.



CYLINDER AND PISTON

ENG



2. Install:

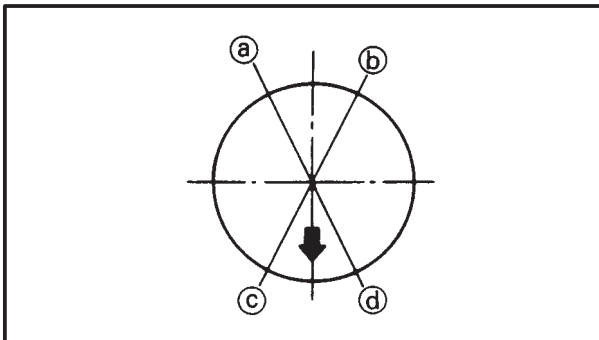
- *Piston ①
- *Piston pin ②
- *Piston pin clip ③ **New**

NOTE:

- *Apply engine oil onto the piston pins.
- *The “→” mark (a) on the piston must face the exhaust side of the cylinder.
- *Before installing the piston pin clip, cover the crankcase opening with a clean rag to prevent the piston pin clip from falling into the crankcase.
- *Make sure to install each piston in its respective cylinder.

3. Install:

- *Gasket (cylinder) **New**
- *Dowel pins



4. Position:

- *Piston rings

NOTE:

Offset the piston ring end gaps as shown.

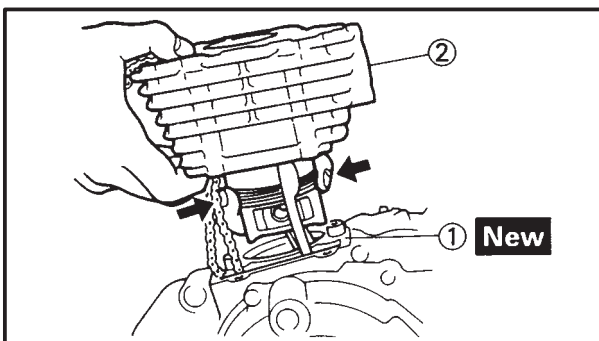
- (a) Top ring end
- (b) Oil ring end (lower)
- (c) Oil ring end (upper)
- (d) 2nd ring end

5. Lubricate:

- *Piston outer surface
- *Piston ring
- *Cylinder inner surface



Engine oil



6. Install:

- *Gasket (cylinder) ① **New**
- *Cylinder ②

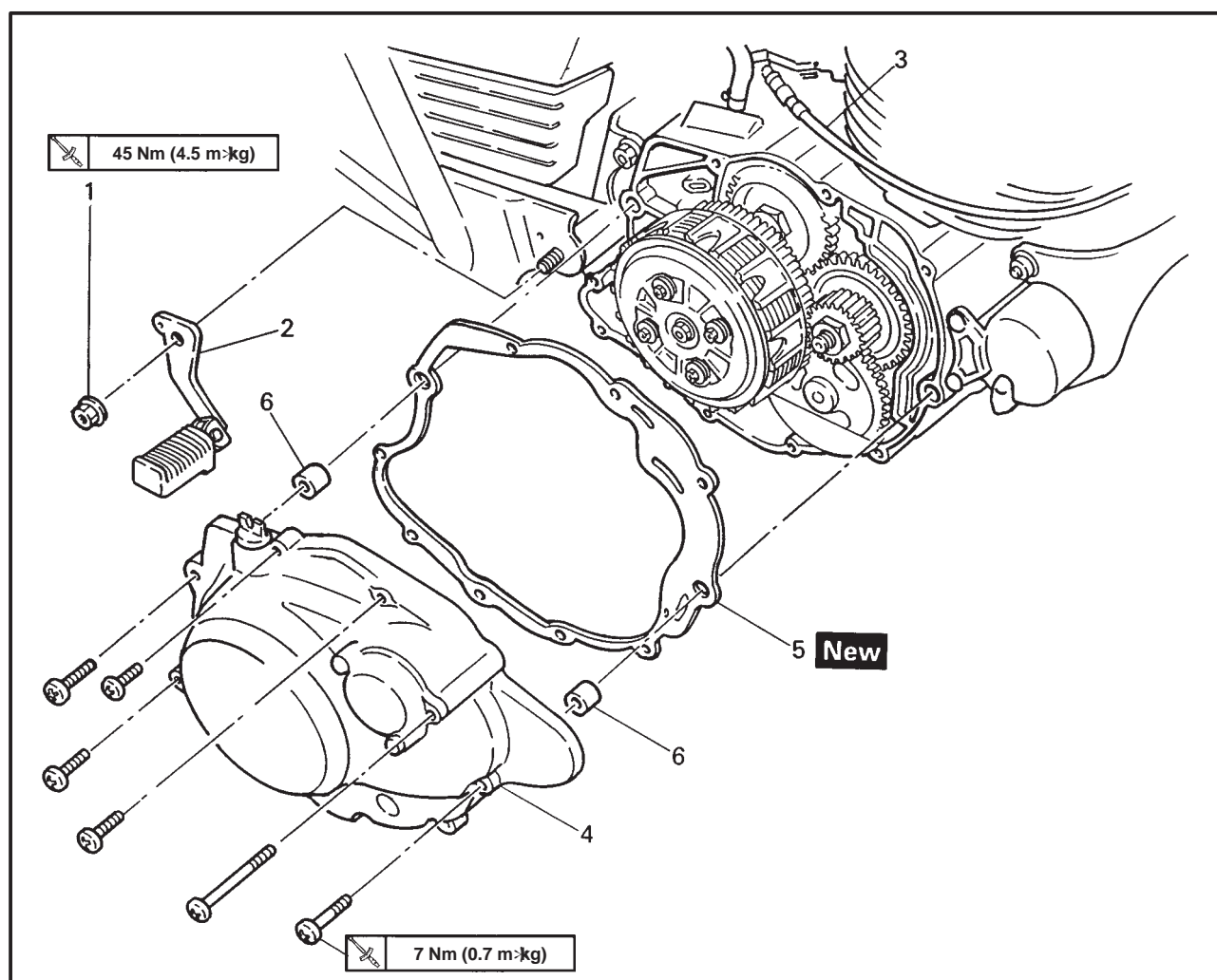
NOTE:

- *Install the cylinder with one hand while compressing the piston rings with the other hand.
- *Pass the timing chain and timing chain guide (exhaust side) through the timing chain cavity.



CLUTCH

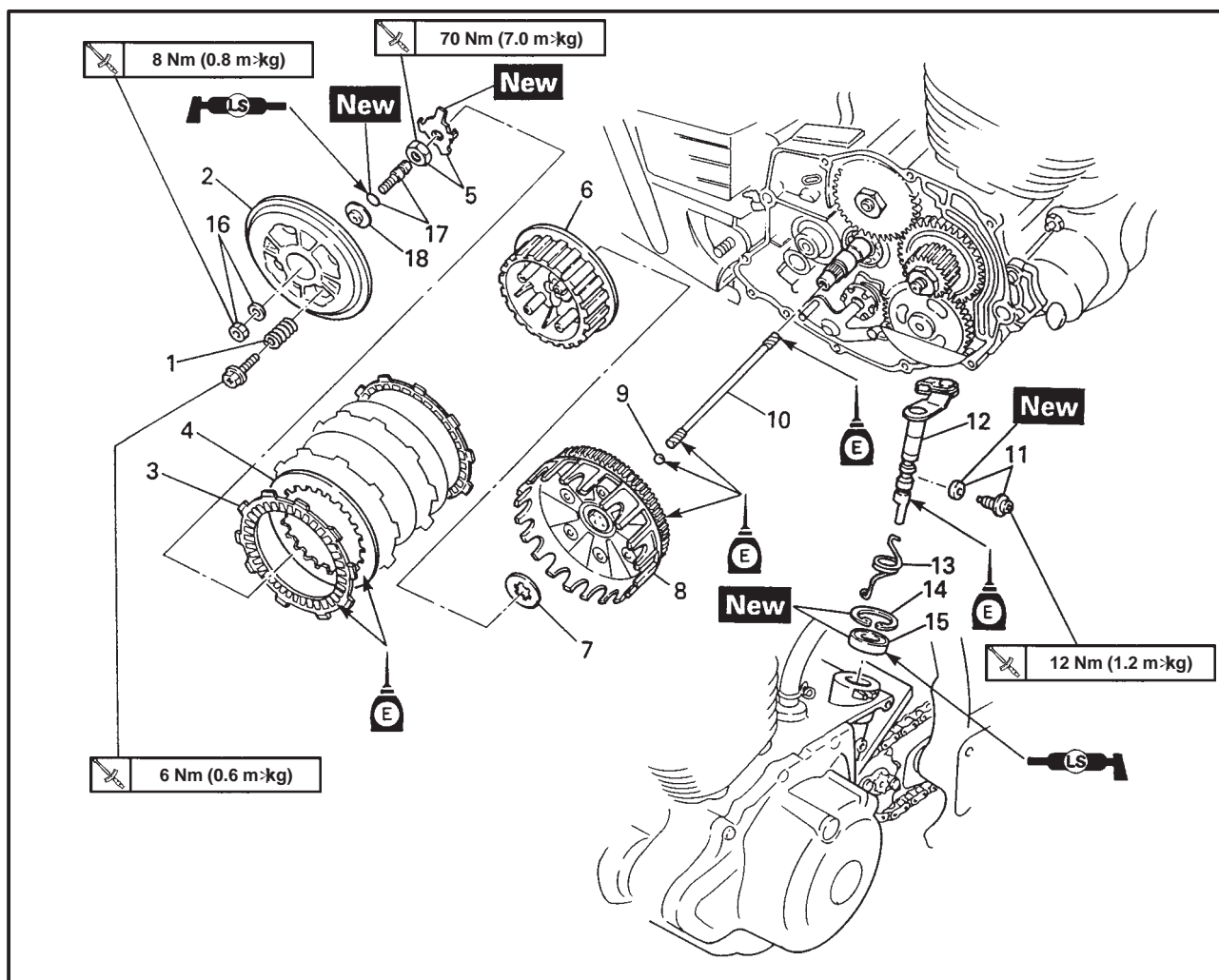
CRANKCASE COVER (RIGHT)



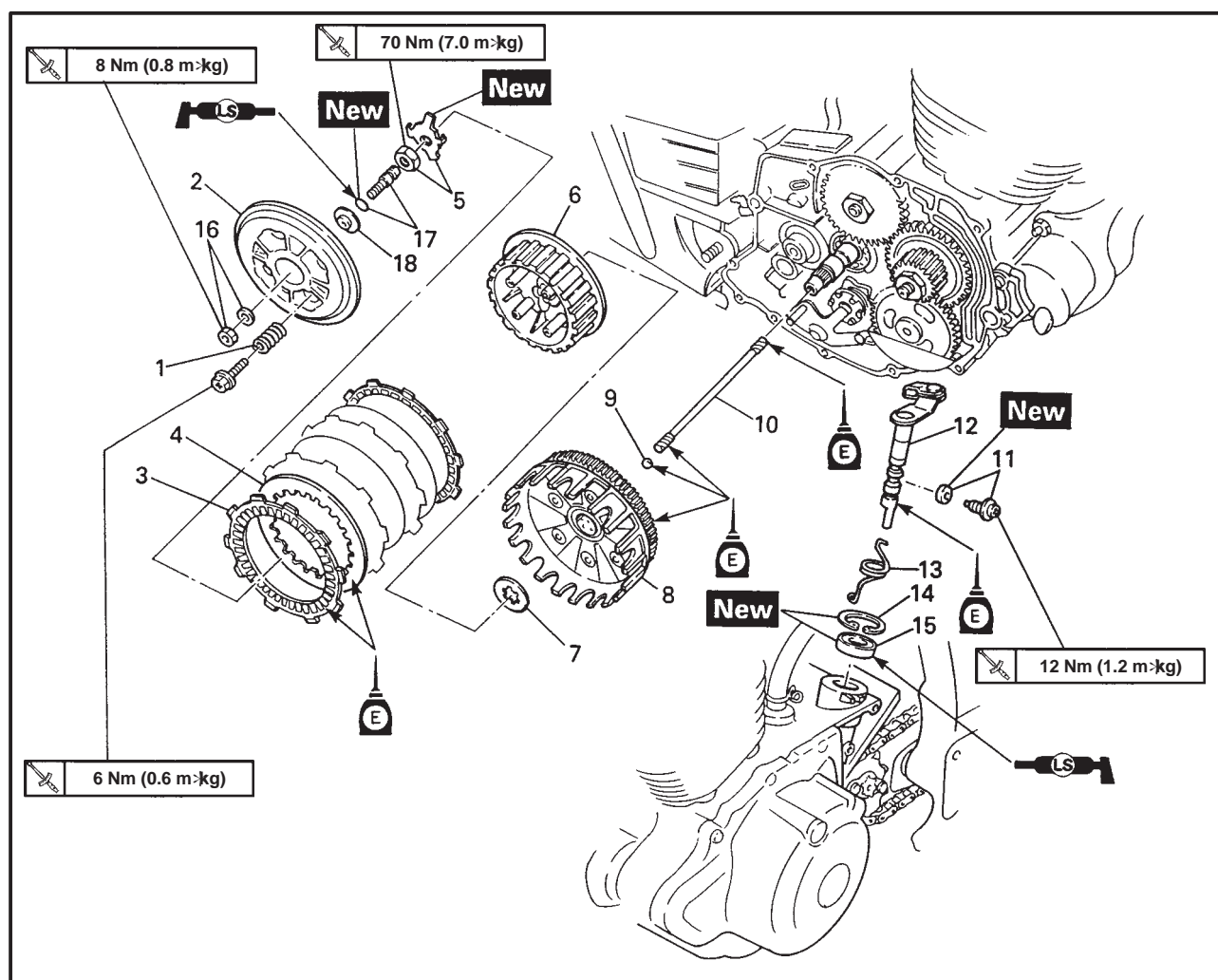
Order	Job name/Part name	Q'ty	Remarks
	Crankcase cover (right) removal Drain the engine oil		Remove the parts in order. Refer to "ENGINE OIL REPLACEMENT" section in CHAPTER 3.
1	Nut	1	
2	Foot rest (right)	1	
3	Clutch cable	1	
4	Crankcase cover (right)	1	
5	Crankcase cover gasket (right)	1	
6	Dowel pins	2	
			Reverse the removal procedure for installation.



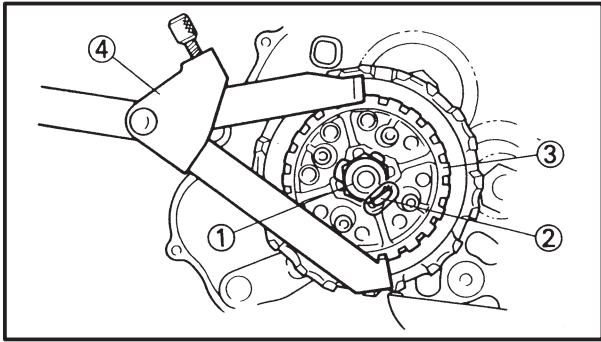
CLUTCH



Order	Job name/Part name	Q'ty	Remarks
	Clutch removal		
1	Sprocket cover	4	Remove the parts in order. Refer to "ENGINE REMOVAL" section.
2	Clutch springs	1	Refer to "CLUTCH INSTALLATION" section.
3	Pressure plate	4	
4	Friction plates	3	
5	Clutch plates	1/1	Refer to "CLUTCH REMOVAL/INSTALLATION" section.
6	Nut/Lock washer	1	
7	Clutch boss	1	
8	Plate washer	1	Refer to "CLUTCH INSTALLATION" section.
9	Primary driven gear	1	
10	Ball	1	
11	Push rod #2	1	
	Push lever screw/Gasket	1/1	



Order	Job name/Part name	Q'ty	Remarks
12	Push lever axle	1	Refer to "CLUTCH INSTALLATION" section.
13	Torsion spring	1	
14	Circlip	1	
15	Oil seal	1	
16	Nut/Washer	1/1	
17	Push rod #1/O-ring	1/1	Refer to "CLUTCH INSTALLATION" section.
18	Push plate	1	
			Reverse the removal procedure for installation.



SR401061

CLUTCH REMOVAL

1. Remove:

- ✳Nut ① (clutch boss)
- ✳Lock washer ②
- ✳Clutch boss ③

Straighten the lock washer tab ②.

NOTE:

Loosen the clutch boss nut ① while holding the clutch boss with a clutch holding tool ④.



Clutch holding tool:
90890-04086

SR402181

CLUTCH INSPECTION

1. Inspect:

- ✳Friction plates

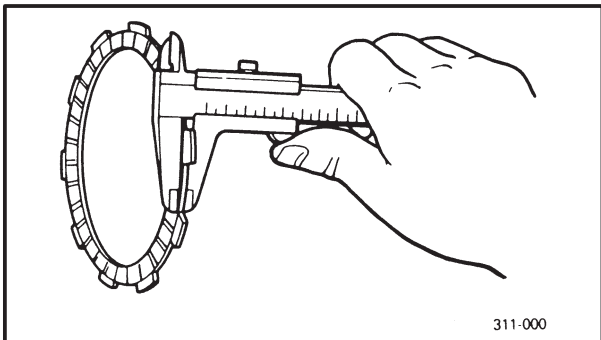
Damage/wear → Replace the friction plates as a set.

2. Measure:

- ✳Friction plate thickness

Out of specification → Replace the friction plates as a set.

Measure at four places.



311-000



Thickness (friction plate):
2.9 × 3.1 mm
<Limit: 2.7 mm>

3. Inspect:

- ✳Clutch plates

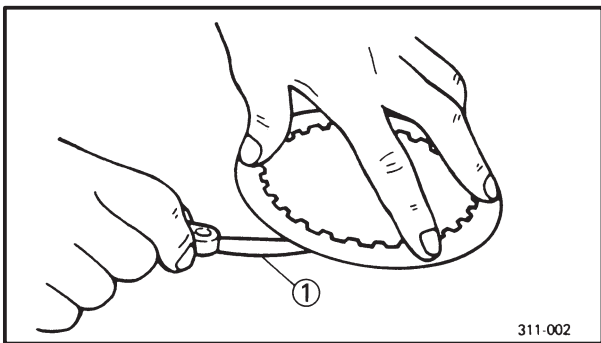
Damage → Replace the clutch plates as a set.

4. Measure:

- ✳Clutch plate warpage

Out of specification → Replace the clutch plates as a set.

Use a surface plate and a feeler gauge ①.



311-002

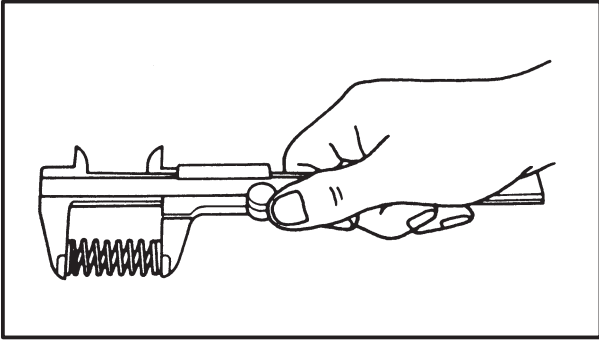


Warp limit (clutch plate):
Less than 0.05 mm

5. Inspect:

- ✳Clutch springs

Damage → Replace the clutch springs as a set.



6. Measure:

✳Free length (clutch spring) ①

Out of specification → Replace the clutch springs as a set.



Free length (clutch spring):

34.5 mm

<Limit: 32.9 mm>

7. Inspect:

✳Dogs on the primary driven gear ①

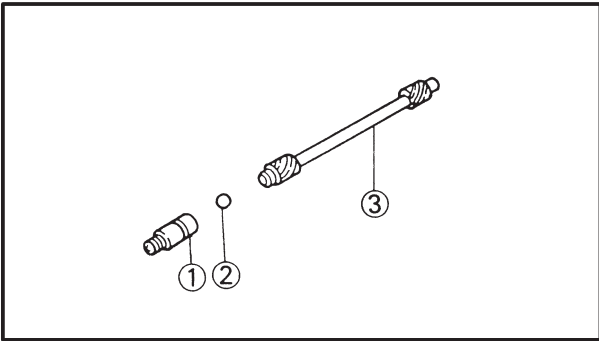
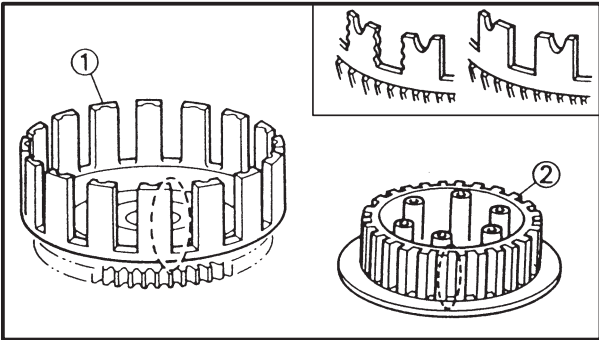
Scoring/wear/damage → Deburr or replace.

✳Clutch boss splines ②

Scoring/wear/damage → Replace clutch boss.

NOTE:

Scoring on the clutch housing dogs and the clutch boss splines will cause erratic operation.



SR*****

PUSH ROD INSPECTION

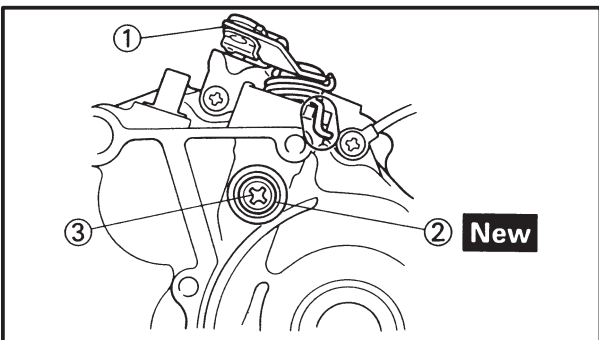
1. Inspect:

✳Push rod #1 ①

✳Ball ②

✳Push rod #2 ③

Wear/crack/damage → Replace.



SR*****

CLUTCH INSTALLATION

1. Install:

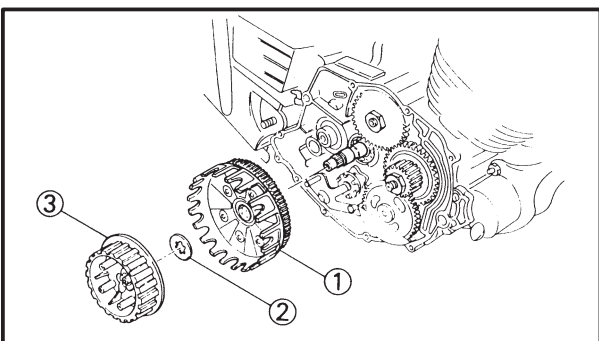
✳Push lever axle ①

✳Gasket ② **New**

✳Screw ③



12 Nm (1.2 m·kg)



2. Install:

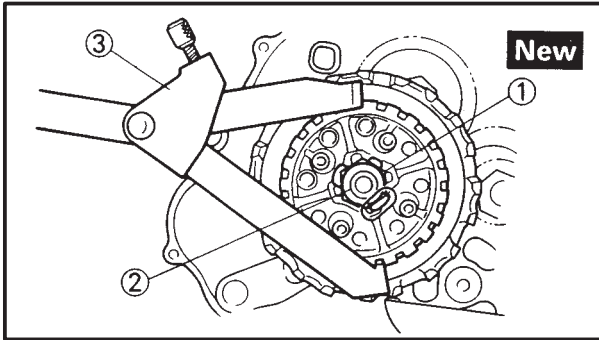
✳Primary driven gear ①

✳Plate washer ②

✳Clutch boss ③

NOTE:

Tighten the nut (primary drive gear) while holding the rotor with the sheave holder ③.



3. Install:

✱ Lock washer ① **New**

✱ Nut ② (clutch boss)

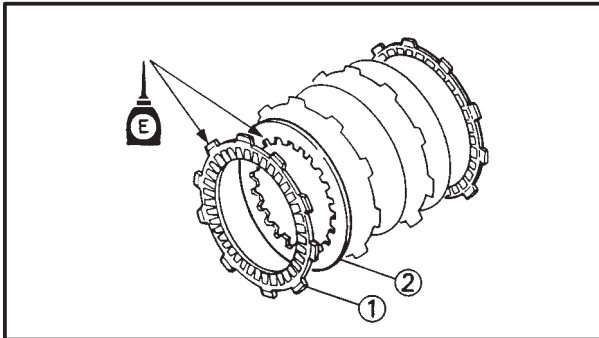
70 Nm (7.0 m·kg)

NOTE:

Install the clutch boss nut ② while holding the clutch boss with a clutch holding tool ③.



Clutch holding tool:
90890-04086



4. Bend:

✱ Lock washer tab
(along a flat side of the end)

5. Install:

✱ Friction plate ①

✱ Clutch plate ②

NOTE:

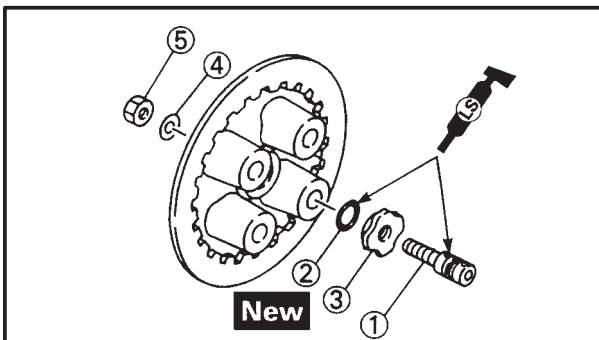
✱ Install the clutch plates and friction plates alternately on the clutch boss, starting with a friction plate and ending with a friction plate.

✱ Coat all clutch and friction plates with engine oil before installation.

6. Install:

✱ Push rod #2

✱ Ball



7. Install:

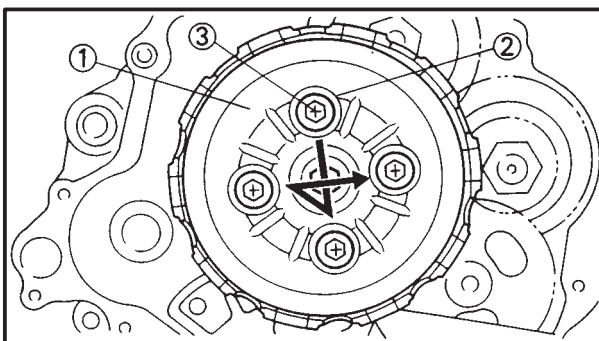
✱ Push rod #1 ①

✱ O-ring ② **New**

✱ Push plate ③

✱ Plate washer ④

✱ Nut ⑤ (push rod #1)



8. Install:

✱ Pressure plate ①

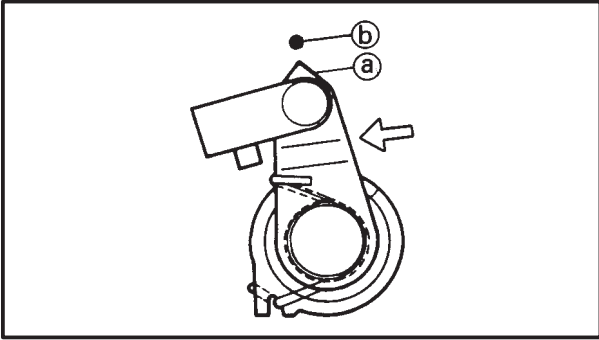
✱ Compression springs ②

✱ Bolts ③ (clutch springs)

6 Nm (0.6 m·kg)

NOTE:

Tighten the clutch spring bolts in stage, using a crisscross pattern.



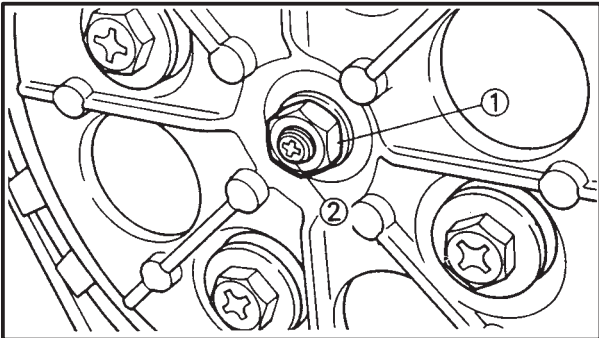
9. Check:

✳Push lever position

Push the push lever assembly in the arrow direction and make sure that match marks are aligned → Adjust.

① Match mark on the push lever assembly

② Match mark on the crankcase



10. Adjust:

✳Push lever position

Adjustment steps:

✳Loosen the locknut ①.

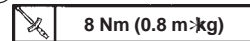
✳Turn the adjuster ② clockwise or counter-clockwise to match alignment marks.

✳Hold the adjuster to prevent it from moving and tighten the locknut to specification.

CAUTION:

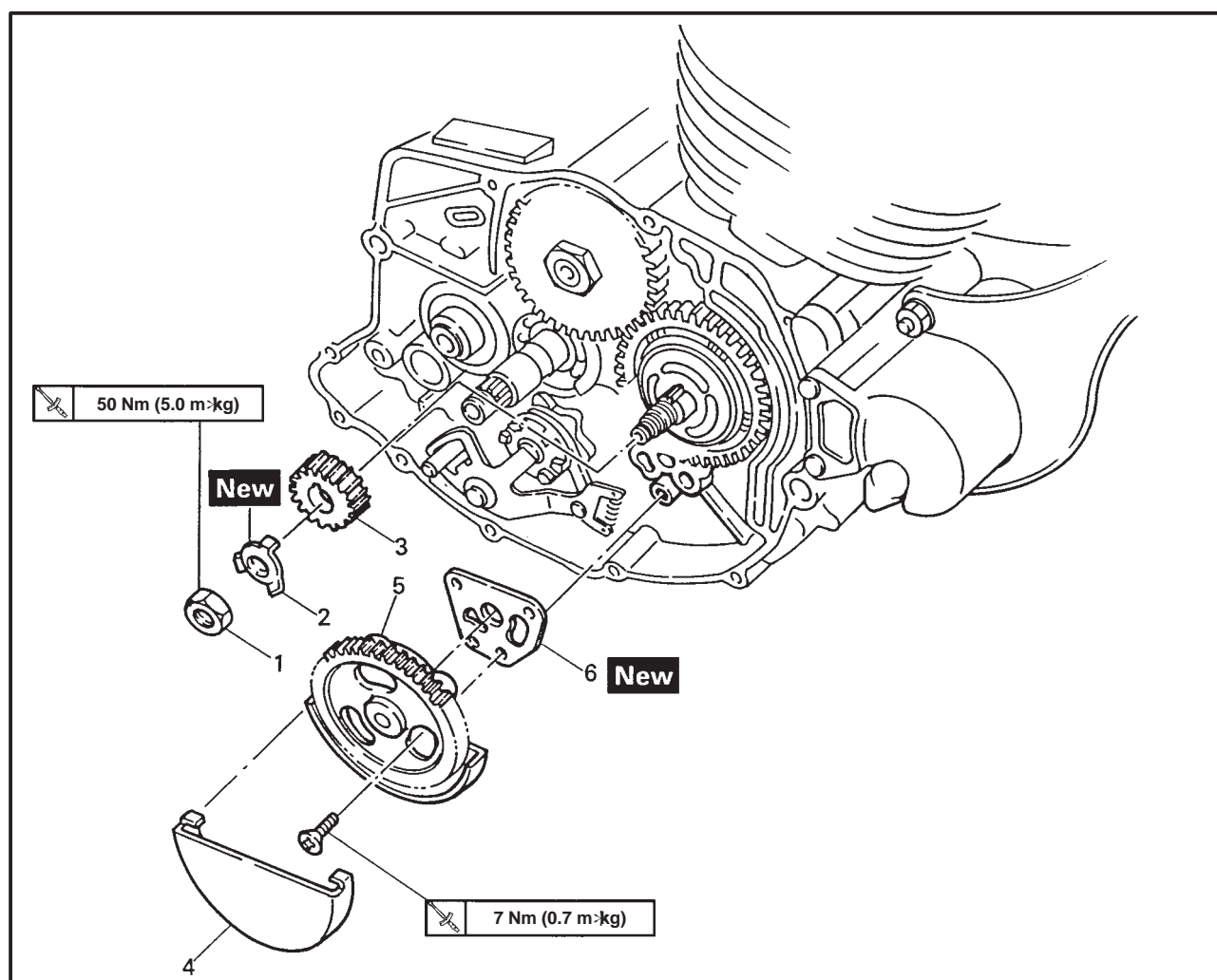
Take care not to overtighten the adjuster ② and to remove the free play between both push rods.

✳Tighten the lock nut ①.

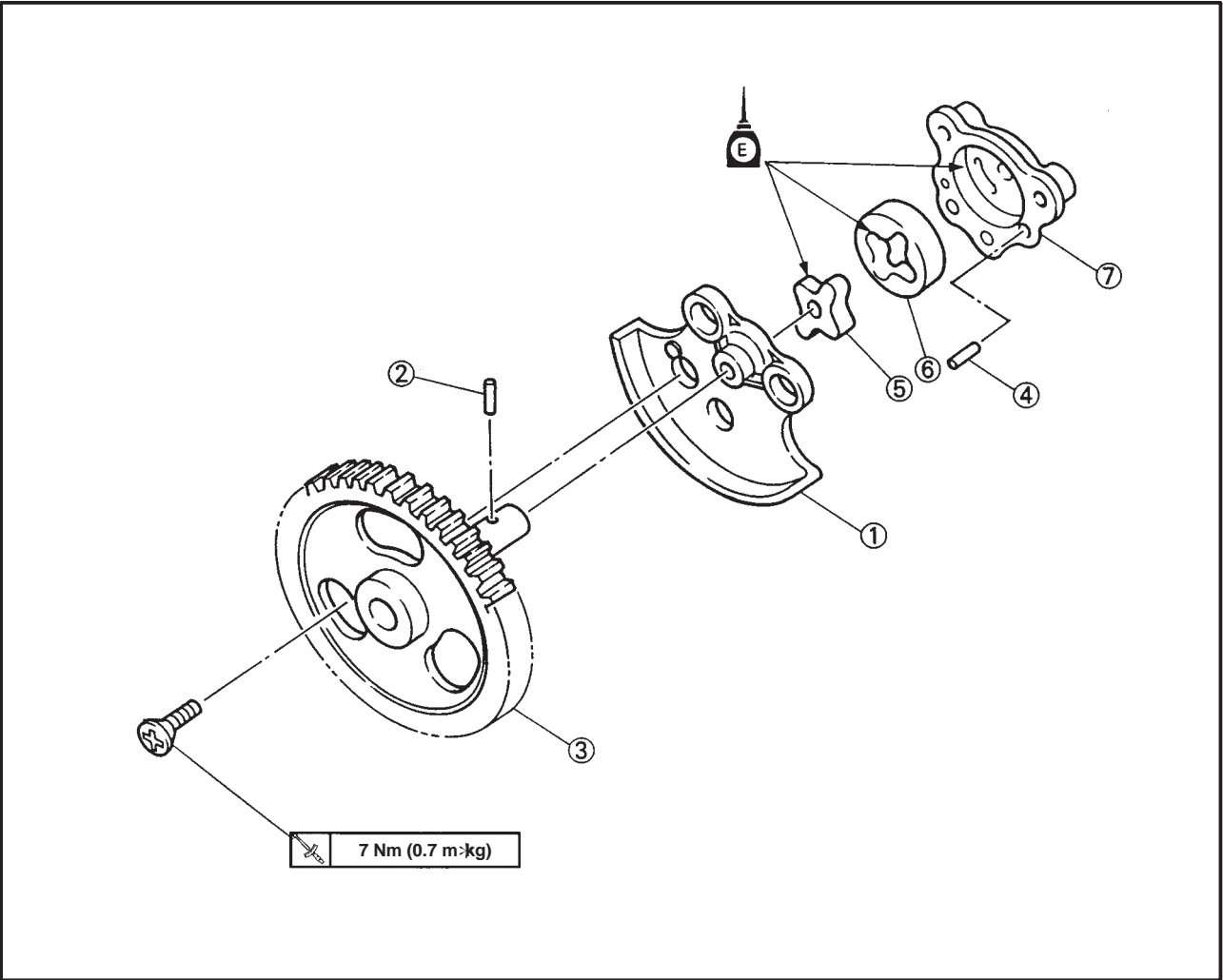




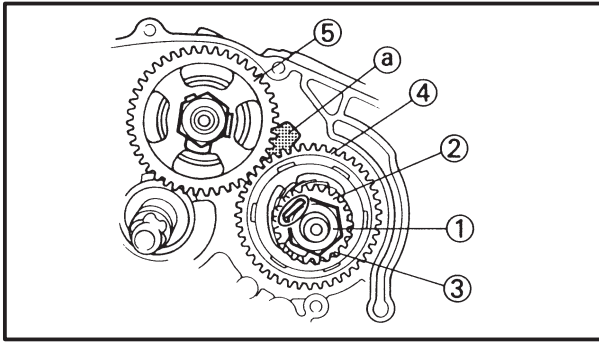
OIL PUMP



Order	Job name/Part name	Q'ty	Remarks
	Oil pump removal Clutch		Remove the parts in order. Refer to "CLUTCH" section.
1	Nut	1	Refer to "PRIMARY DRIVE GEAR REMOVAL/INSTALLATION" section.
2	Lock washer	1	
3	Primary drive gear	1	
4	Oil pump cover	1	Refer to "OIL PUMP REMOVAL/INSTAL- LATION" section
5	Oil pump assembly	1	
6	Gasket (oil pump cover)	1	Reverse the removal procedure for installation.



Order	Job name/Part name	Q'ty	Remarks
	Oil pump disassembly		Disassemble the parts in order.
①	Oil pump housing	1	
②	Dowel pin	1	
③	Oil pump driven gear	1	
④	Dowel pins	2	
⑤	Inner rotor	1	
⑥	Outer rotor	1	
⑦	Housing	1	
			Reverse the disassembly procedure for assembly.



SR401070

PRIMARY DRIVE GEAR REMOVAL**NOTE:**

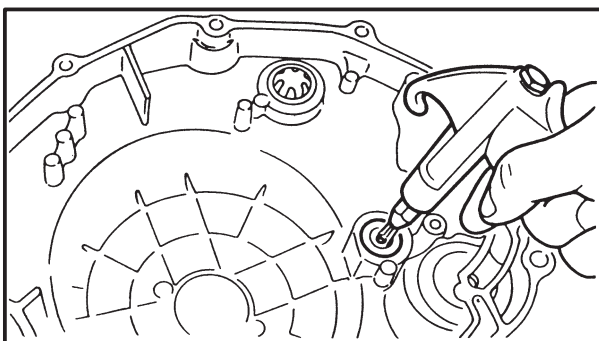
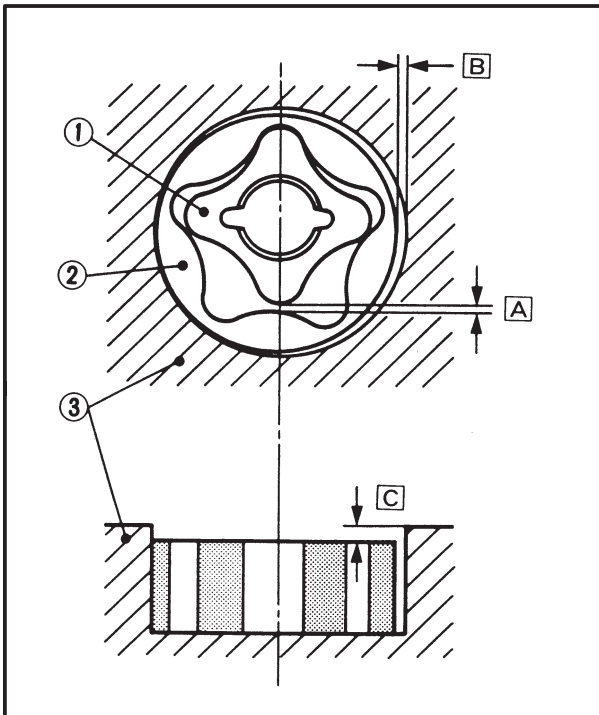
Straighten the lock washer tab.

1. Remove:

- ✳Nut (primary drive gear) ①
- ✳Lock washer ②
- ✳Primary drive gear ③

NOTE:

Place a folded aluminium plate or copper washer (a) between the teeth of the balancer drive gear ④ and balancer driven gear ⑤.



T402140

OIL PUMP INSPECTION

1. Measure:

- ✳Tip clearance A
(between the inner rotor ① and the outer rotor ②)
- ✳Side clearance B
(between the outer rotor ② and the pump housing ③)
Out of specification → Replace the oil pump assembly.
- ✳Housing and rotor clearance C
(between the pump housing ③ and the rotors ①, ②.)
Out of specification → Replace the oil pump assembly.

**Tip clearance A:**

0.03 × 0.09 mm
<Limit: 0.14 mm>

Side clearance B:

0.10 × 0.15 mm
<Limit: 0.35 mm>

Housing and rotor clearance C:

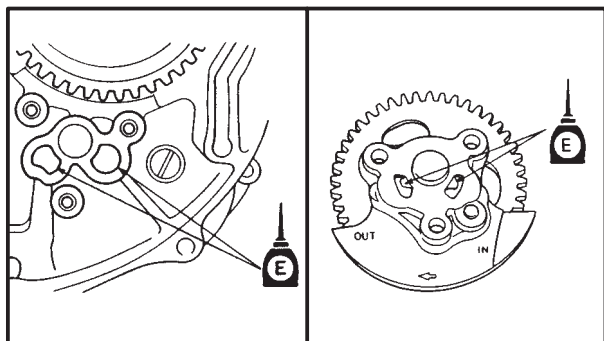
0.03 × 0.09 mm
<Limit: 0.14 mm>

SR*****

OIL DELIVERY PASSAGE INSPECTION (CRANK CASE COVER (right))

1. Check:

- ✳Oil delivery passage
Blockage → Blow by the compressed air.



SR404010

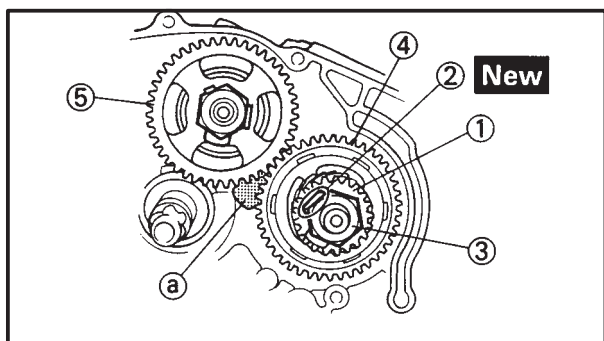
OIL PUMP INSTALLATION

1. Lubricate:

- ✧ Oil delivery passage (crankcase right)
- ✧ Oil pump assembly



Recommended lubricant:
Engine oil



SR404140

PRIMARY DRIVE GEAR INSTALLATION

1. Install:

- ✧ Primary drive gear ①
- ✧ Lock washer ② **New**
- ✧ Nut (primary drive gear) ③



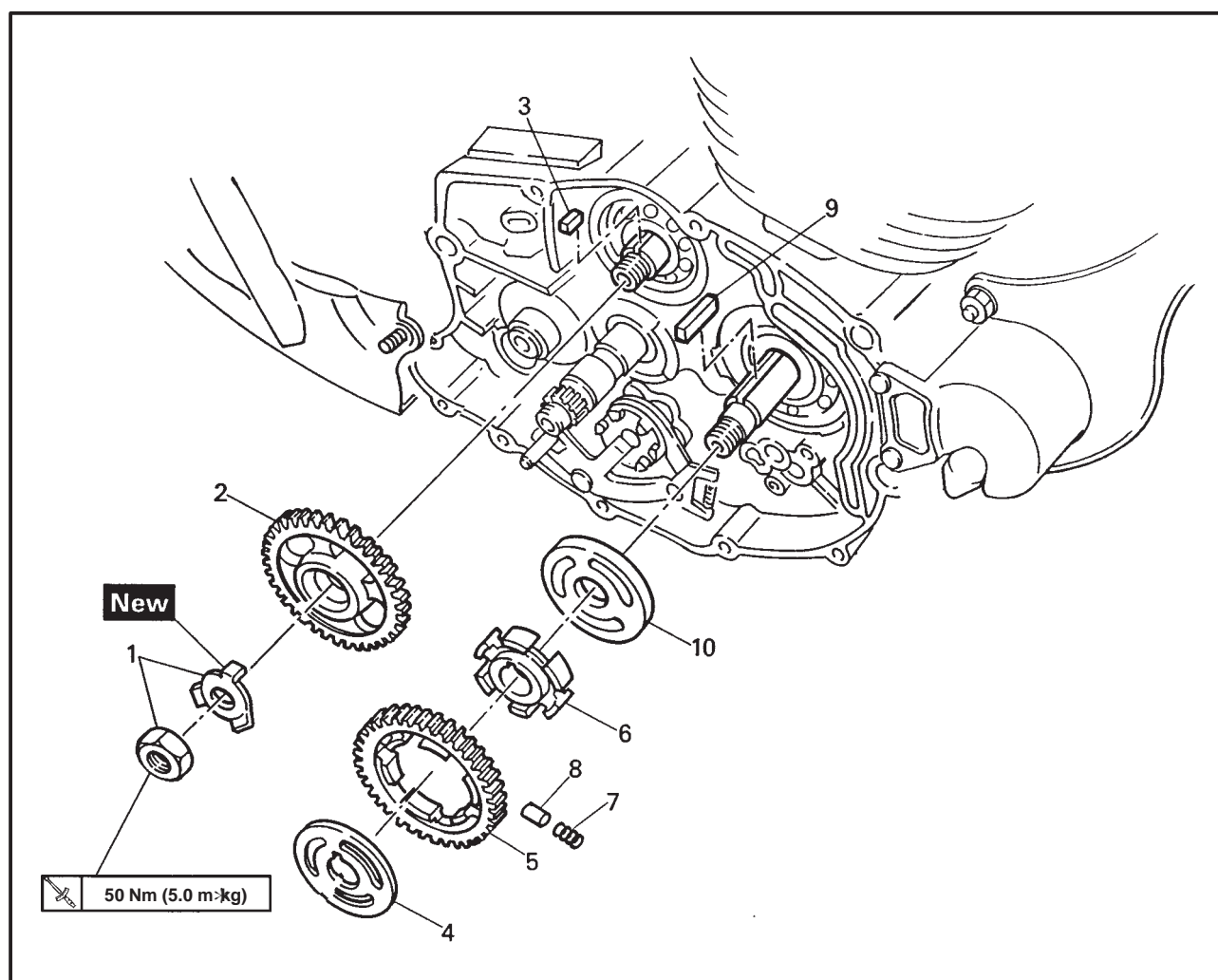
50 Nm (5.0 m·kg)

NOTE:

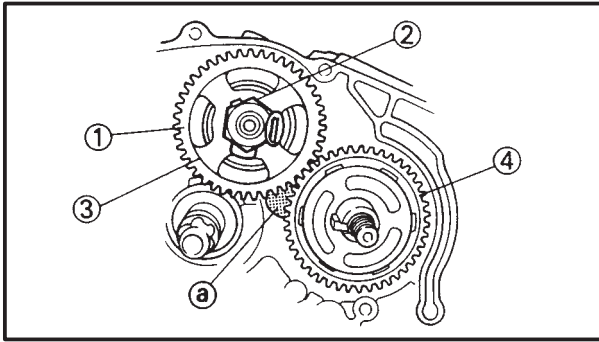
- ✧ Place a folded aluminium plate or copper washer (a) between the teeth of the balancer drive gear ④ and balancer driven gear ⑤.
- ✧ Bend the lock washer tab, after tighten the nut flats.



BALANCER GEAR



Order	Job name/Part name	Q'ty	Remarks
	Balancer gear removal		
	Clutch		Remove the parts in order.
	Primary drive gear		Refer to "CLUTCH" section.
1	Nut/Lock washer	1/1	Refer to "OIL PUMP" section.
2	Balancer driven gear	1	Refer to "BALANCER DRIVEN GEAR REMOVAL/BALANCER GEAR INSTALLATION" section.
3	Woodruff key	1	
4	Claw washer	1	
5	Balancer drive gear	1	
6	Buffer boss	1	Refer to "BALANCER DRIVE GEAR ASSEMBLY" section.
7	Compression spring	6	
8	Dowel pins	3	
9	Woodruff key	1	
10	Plate washer	1	
			Reverse the removal procedure for installation.



SR*****

BALANCER DRIVEN GEAR REMOVAL

NOTE:

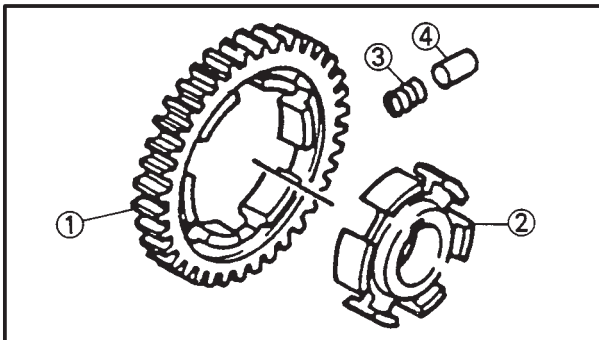
Straighten the lock washer tab.

1. Remove:

- ✧Nut (balancer driven gear) ①
- ✧Lock washer ②
- ✧Balancer driven gear ③

NOTE:

Place a folded aluminium plate or copper washer (a) between the teeth of the balancer drive gear ④ and balancer driven gear ③.



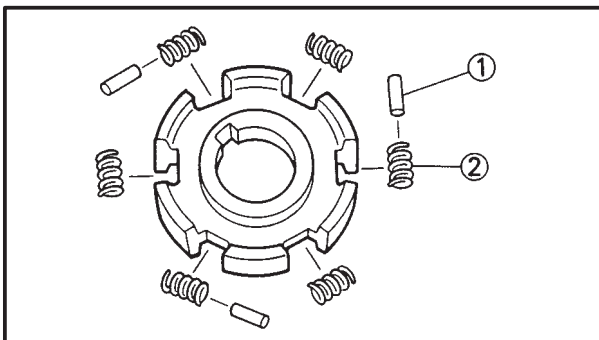
SR*****

DRIVE GEAR INSPECTION

1. Inspect:

- ✧Balancer drive gear ①
- ✧Buffer boss ②
- ✧Compression spring ③
- ✧Dowel pins ④

Wear/Pitting/Scratches → Replace.



SR*****

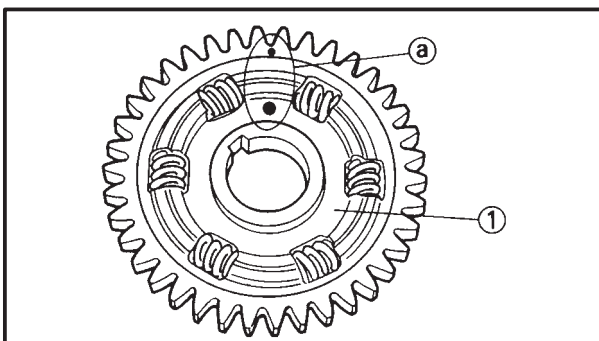
BALANCER DRIVE GEAR ASSEMBLY

1. Assembly:

- ✧Dowel pins ①
- ✧Compression springs ②

NOTE:

Install the dowel pins and compression springs alternately as shown as.

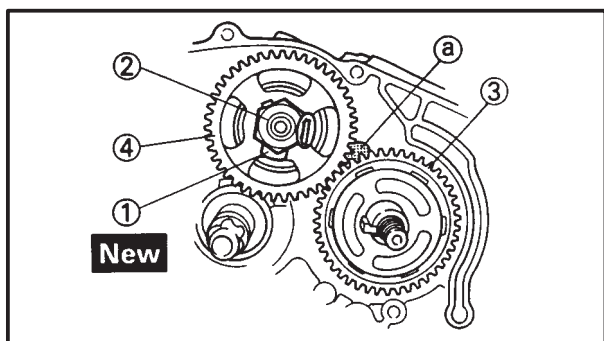
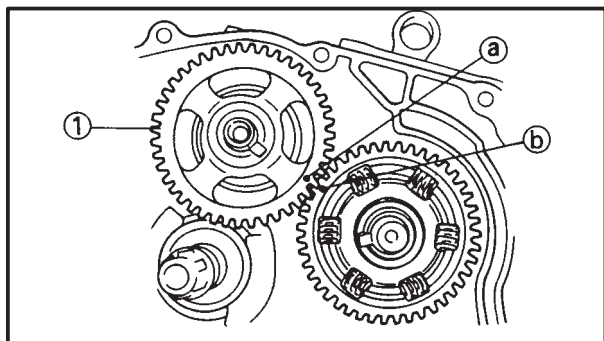


2. Install:

- ✧Buffer boss ①

NOTE:

Align the punched mark (a) on the buffer boss with the one on the balancer drive gear.



SR*****

BALANCER GEAR INSTALLATION

1. Install:

- ✱ Balancer driven gear ①

NOTE:

Install the balancer driven gear, then mesh the balancer driven gear match mark (a) and balancer drive gear assembly match mark (b).

2. Install:

- ✱ Lock washer ① **New**
- ✱ Nut (balancer drive gear) ②

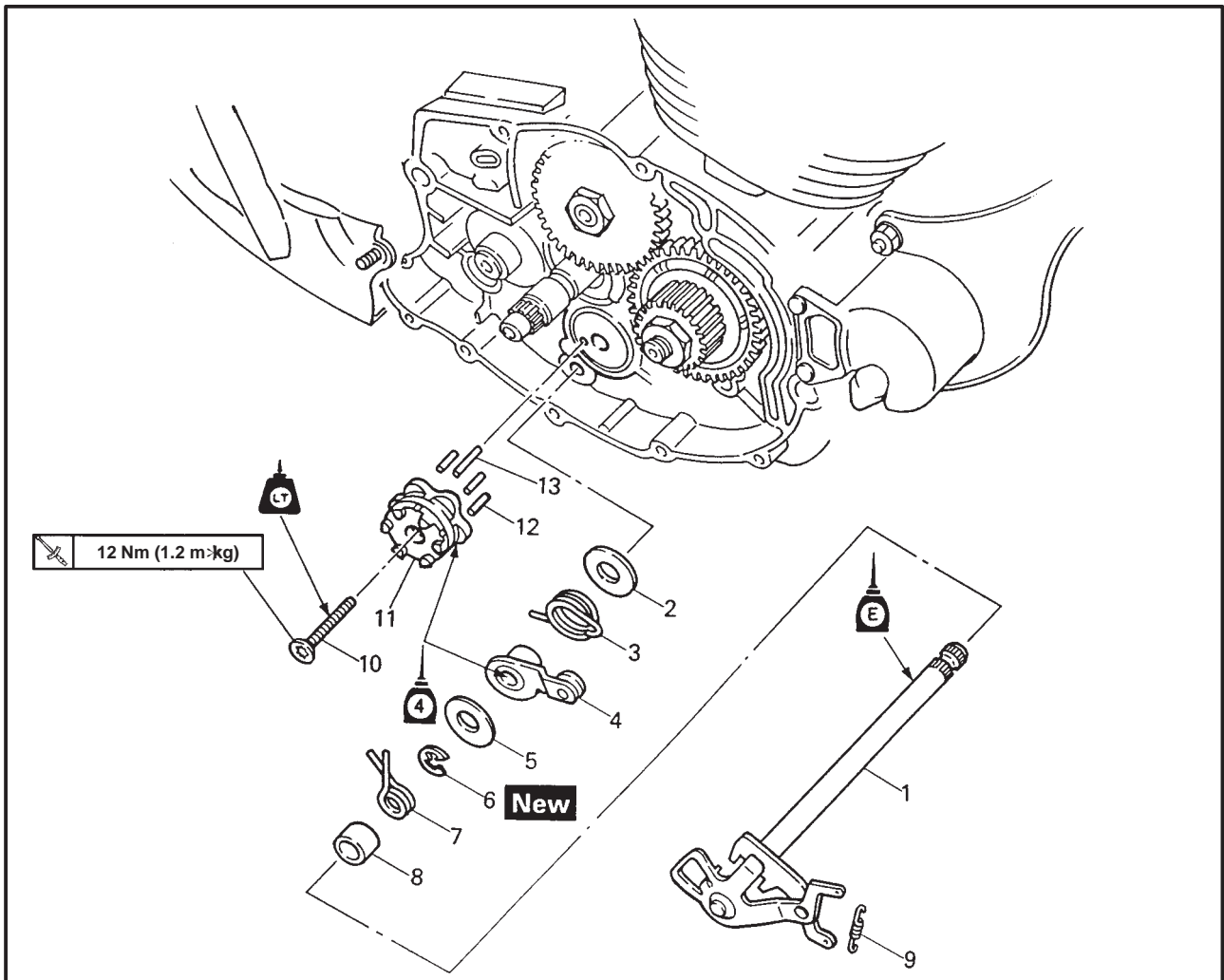
	50 Nm (5.0 m·kg)
--	------------------

NOTE:

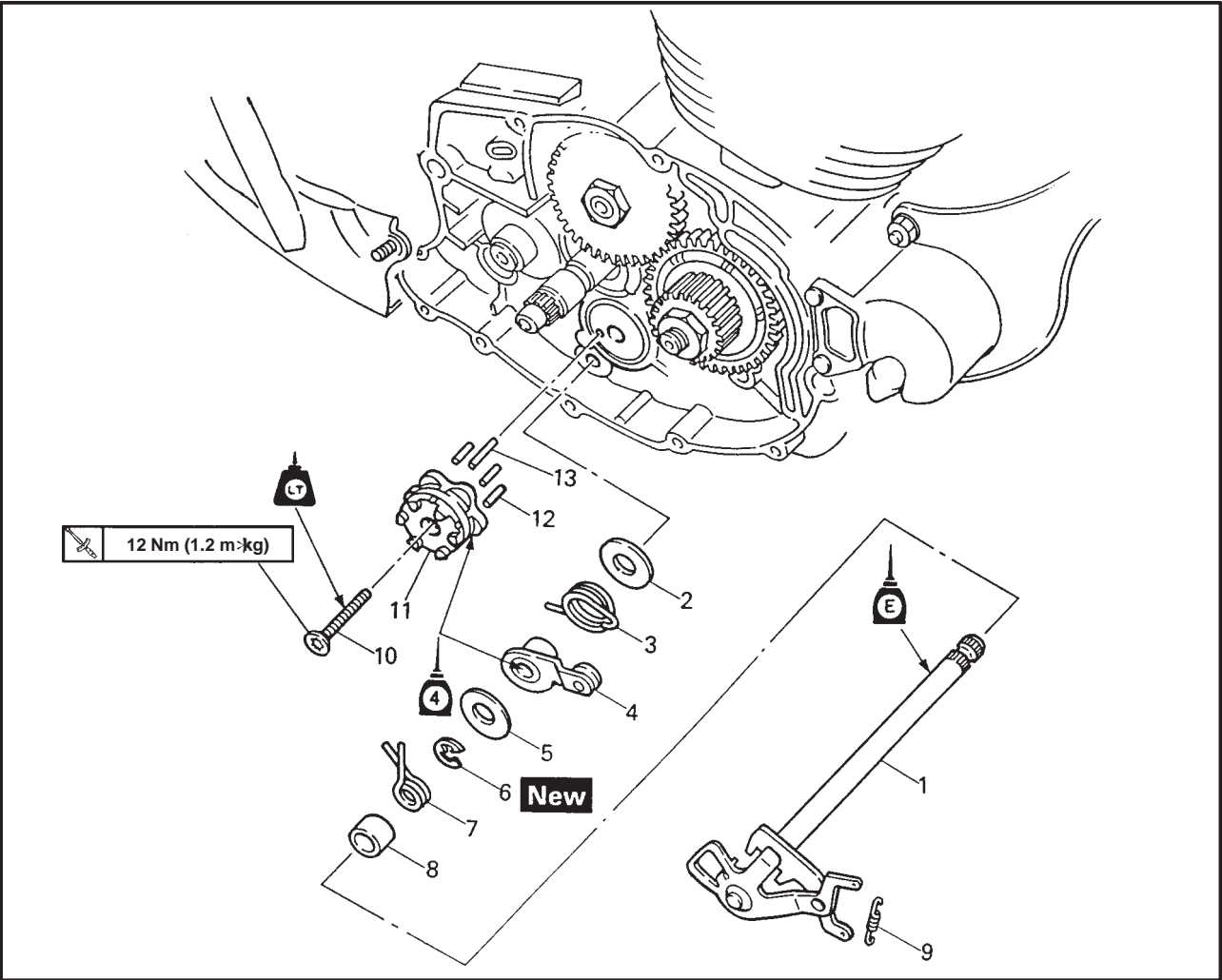
- ✱ Place a folded aluminium plate or copper washer (a) between the teeth of the balancer drive gear ③ and balancer driven gear ④.
- ✱ Bend the lock washer tab, after tighten the nut flats.



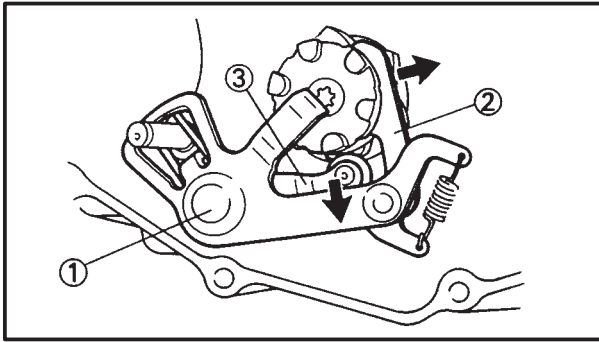
SHIFT SHAFT AND SEGMENT



Order	Job name/Part name	Q'ty	Remarks
	Shift shaft and segment removal		
	Clutch		Remove the parts in order.
	Shift pedal		Refer to "CLUTCH" section.
	Shift shaft		Refer to "ENGINE REMOVAL" section.
1	Shift shaft	1	Refer to "SHIFT SHAFT REMOVAL/INSTALLATION" section.
2	Plate washer	1	
3	Torsion spring	1	
4	Stopper lever	1	
5	Plate washer	1	
6	Circlip	1	
7	Torsion spring	1	
8	Collar	1	
9	Tension spring	1	



Order	Job name/Part name	Q'ty	Remarks
10	Screw	1	Refer to "SEGMENT INSTALLATION" section.
11	Segment	1	
12	Dowel pins (short length)	4	
13	Dowel pins (long length)	1	
			Reverse the removal procedure for installation.



SR*****

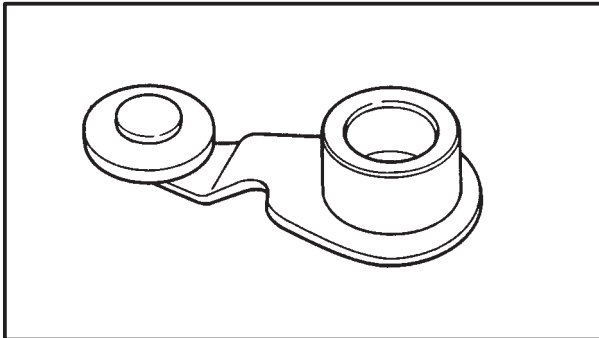
SHIFT SHAFT REMOVAL

1. Remove:

- ✳Shift shaft assembly ①

NOTE:

Push the shift lever arm ② and the stopper lever ③ to the arrow direction and remove them from the segment.

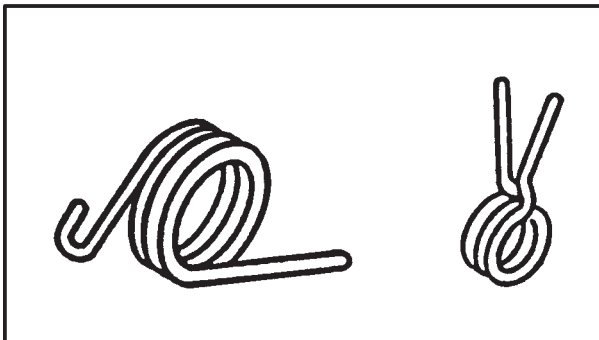


T402200

SHIFT SHAFT INSPECTION

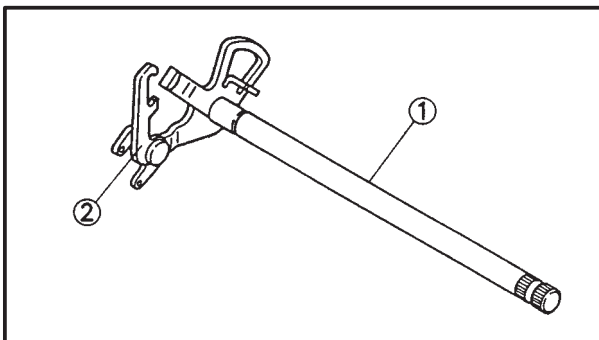
1. Inspect:

- ✳Stopper lever
 - Roller turns roughly → Replace.
 - Bends/damage → Replace.



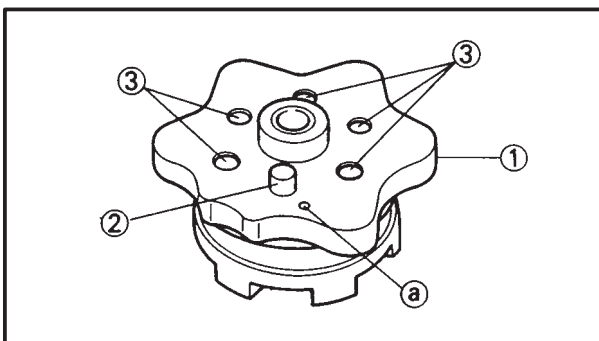
2. Inspect:

- ✳Torsion springs (stopper lever and shift arm)
 - Wear/damage → Replace.



3. Inspect:

- ✳Shift shaft assembly ①
- ✳Shift lever ②
 - Bends/wear/damage → Replace.



SR*****

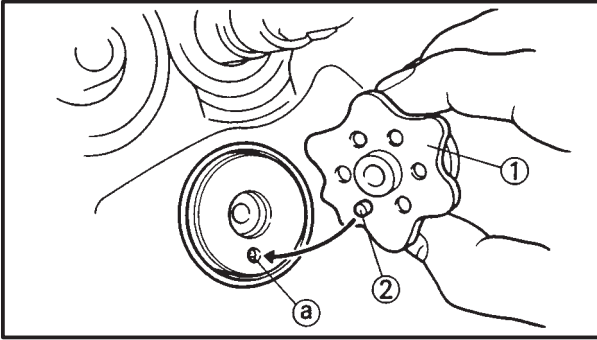
SEGMENT INSTALLATION

1. Install:

- ✳Segment ①
- ✳Dowel pins ② (short length)
- ✳Dowel pin ③ (long length)

NOTE:

Install the dowel pin ② (long length) into the hole beside the match mark (a) position.

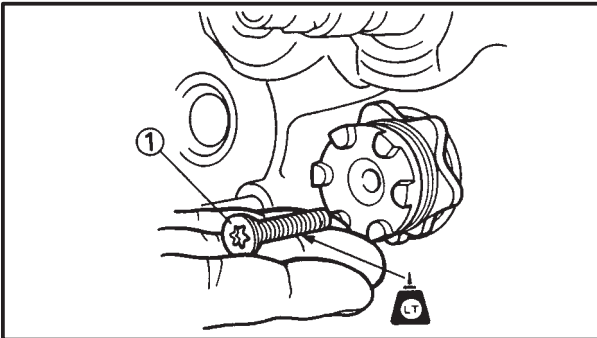


2. Install:

✳Segment ①

NOTE:

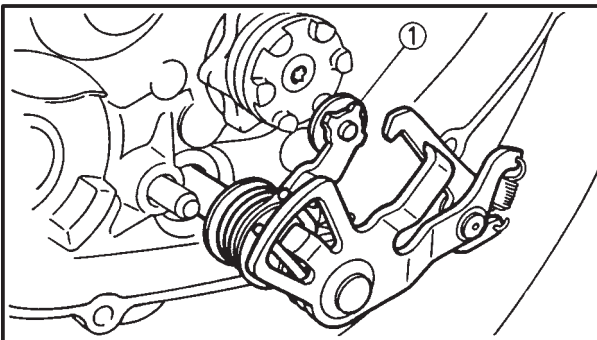
Fit the dowel pin ② (long length) on the segment to the locating hole ① on the shift cam and install the segment.



3. Tighten:

✳Screw ①

12 Nm (1.2 m·kg)



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SHIFT SHAFT INSTALLATION

1. Install:

✳Shift shaft assembly

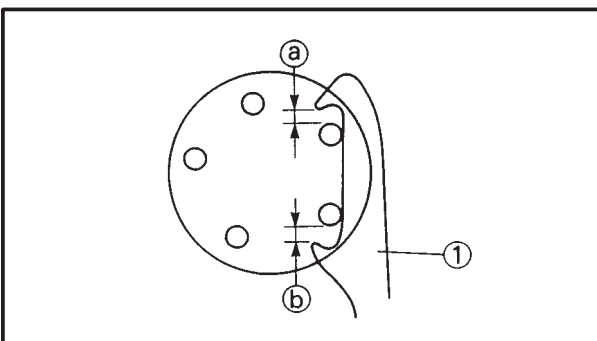
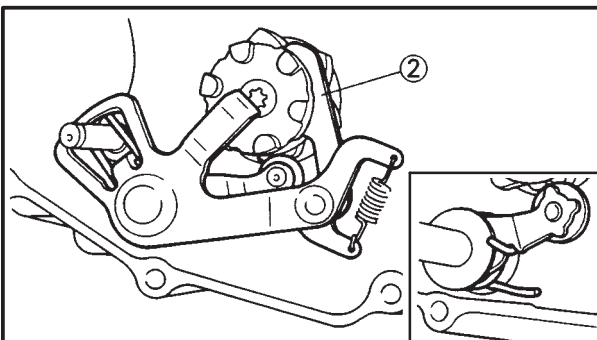
Instaling steps:

✳Set the stopper lever and return spring to the shift shaft.

✳Mesh the stopper lever ① with the shift cam segment.

✳Install the shift lever ② to the shift cam segment.

✳After installing the shift shaft, check the shift cam for smooth operation by turning the shift shaft with your hand.



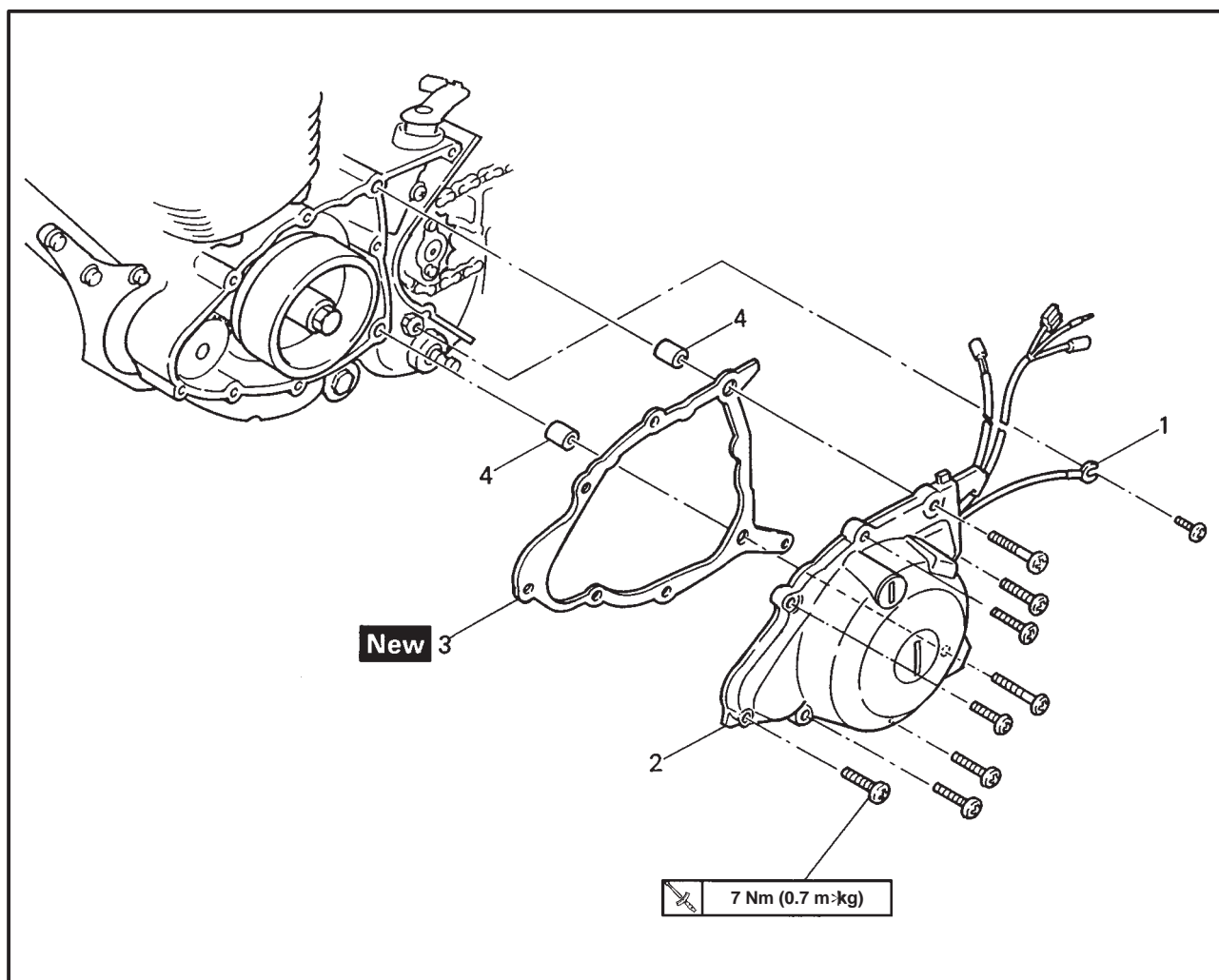
2. Check:

✳Shift lever ① position

Gaps ① and ② are not equal → Replace the defective parts.



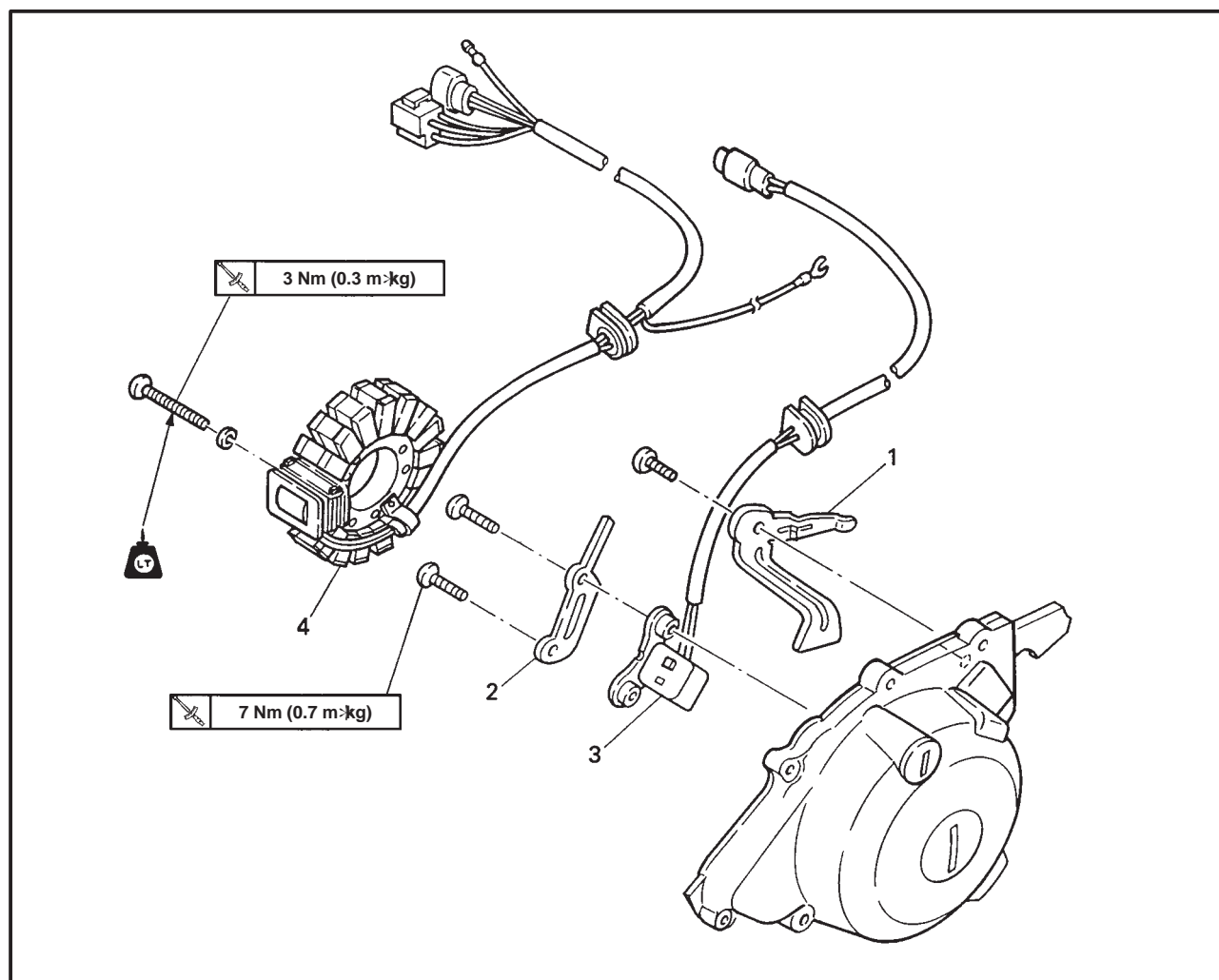
CDI MAGNETO AND STARTER CLUTCH CRANKCASE COVER (LEFT)



Order	Job name/Part name	Q'ty	Remarks
	Crankcase cover (left) removal		Remove the parts in order.
	Drain the engine oil		Refer to "ENGINE OIL REPLACEMENT" section in CHAPTER 3.
	Side cover		Refer to "SIDE COVER, SEAT AND FUEL TANK" section in CHAPTER 3.
	Drive sprocket cover		Refer to "ENGINE REMOVAL" section.
	DCI magneto lead couplers		
1	Neutral switch lead connector	1	
2	Crankcase cover (left)	1	
3	Gasket	1	
4	Dowel pins	2	
			Reverse the removal procedure for installation.



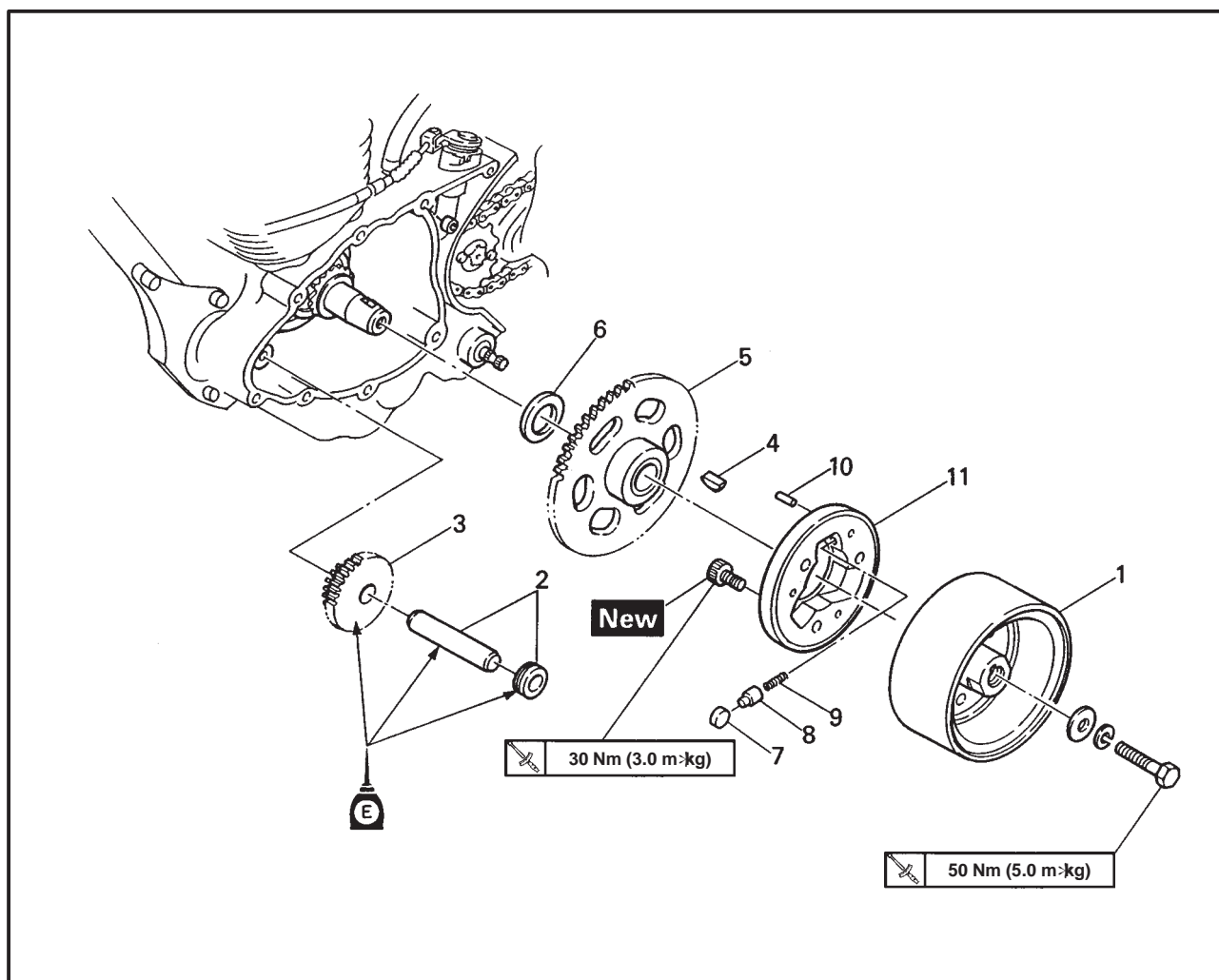
PICKUP COIL AND STATOR COIL



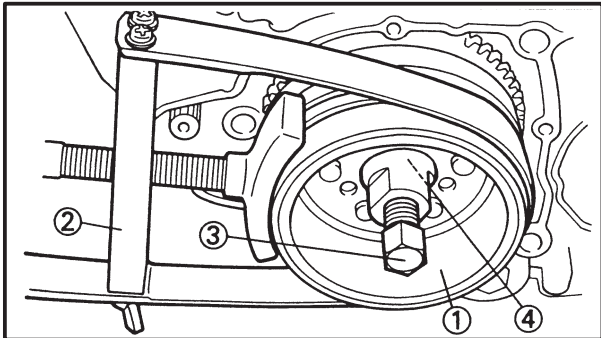
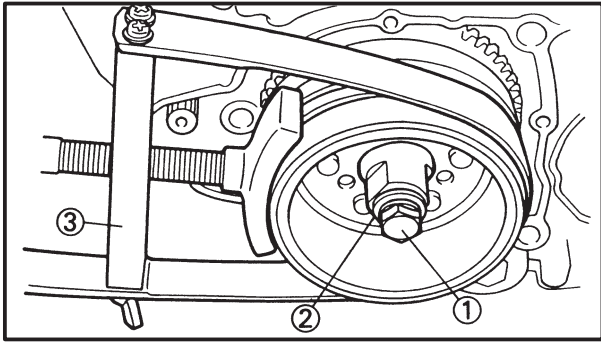
Order	Job name/Part name	Q'ty	Remarks
	Pickup coil and stator coil removal		Remove the parts in order.
1	Clamp (stator coil)	1	
2	Clamp (pickup coil)	1	
3	Pickup coil	1	
4	Stator coil	1	
			Reverse the removal procedure for installation.



CDI MAGNETO AND STARTER CLUTCH



Order	Job name/Part name	Q'ty	Remarks
	CDI magneto and starter clutch removal		Remove the parts in order.
1	CDI magneto	1	Refer to "CDI MAGNETO REMOVAL/INSTALLATION" section.
2	Idle shaft/collar	1	
3	Starter idle gear	1	
4	Woodruff key	1	
5	Starter wheel gear	1	Refer to "CDI MAGNETO INSTALLATION" section.
6	Shim	1	
7	Dowel pins (Inner)	3	
8	Spring caps	3	
9	Compression springs	3	Refer to "STARTER CLUTCH INSTALLATION" section.
10	Dowel pins (outer)	3	
11	Starter clutch	1	Remove the removal procedure for installation.



YP401081

C.D.I. MAGNETO REMOVAL

1. Remove:

- ✳ Bolt ① (magneto)
- ✳ Plain washer ②

NOTE:

- ✳ Loosen the bolt (magneto) ① while holding the rotor with a sheave holder ③.
- ✳ Do not allow the sheave holder to touch the projection on the magneto.



Sheave holder:
90890-01701

2. Remove:

- ✳ CDI magneto assembly ①
- ✳ Woodruff key

NOTE:

Remove the magneto using sheave holder ②, rotor puller ③ and rotor puller attachment ④.



Rotor puller:
90890-01080
Rotor puller attachment:
90890-04052

SR402163

STARTER CLUTCH INSPECTION

1. Check:

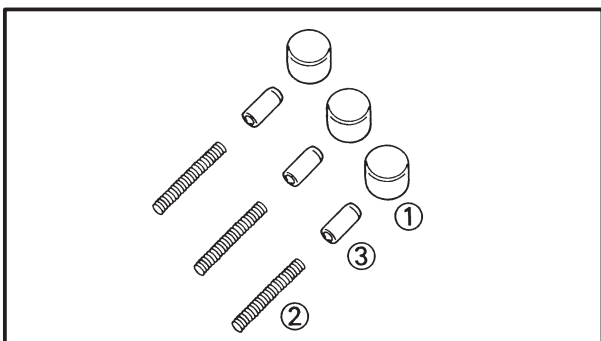
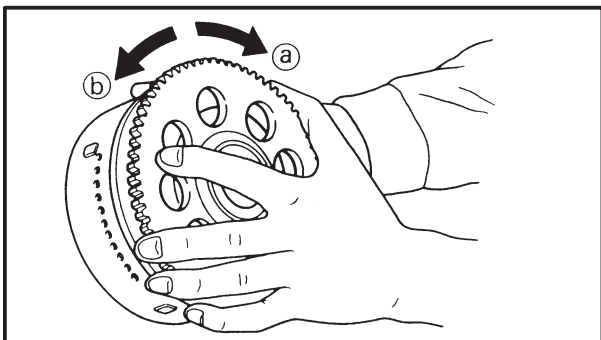
- ✳ Starter clutch operation
Push the dowel pins to the arrow direction.
Unsmooth operation → Replace.

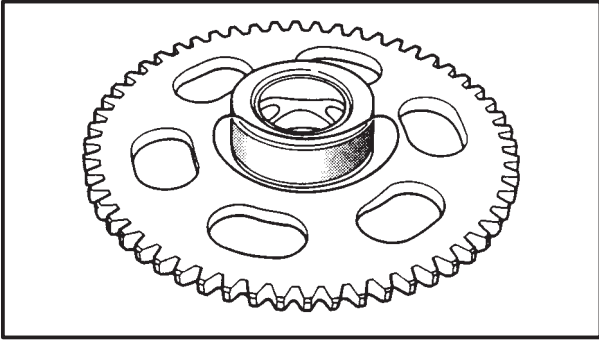
Checking steps:

- ✳ Hold the starter clutch.
- ✳ When turning the starter wheel gear clockwise ①, the starter clutch and the starter wheel gear should be engaged.
- ✳ If not, the starter clutch is faulty. Replace it.
- ✳ When turning the starter wheel gear counter-clockwise ②, it should turn freely.
- ✳ If not, the starter clutch is faulty. Replace it.

2. Inspect:

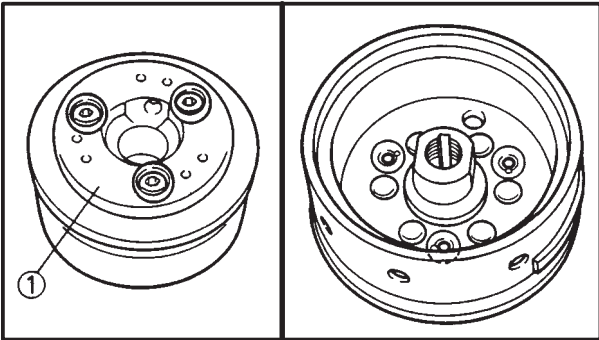
- ✳ Dowel pins ①
- ✳ Compression springs ②
- ✳ Spring caps ③
- Wear/Damage → Replace.





3. Inspect:

- *Starter wheel gear (contacting surface)
- Pitting/Wear/Damage → Replace.



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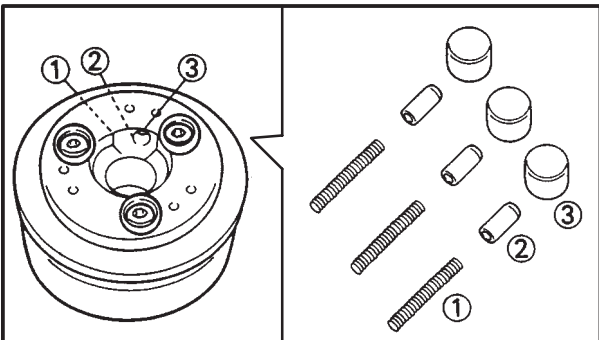
STARTER CLUTCH INSTALLATION

1. Install:

- *Starter clutch assembly (1)

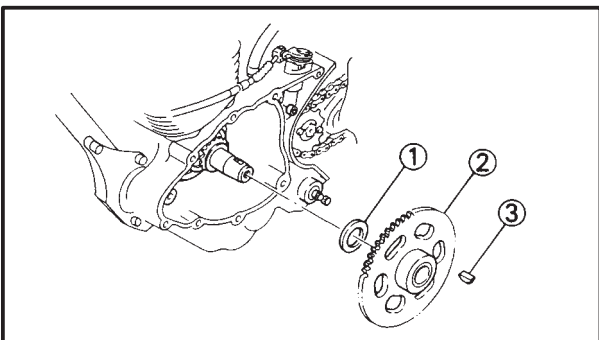
30 Nm (3.0 m·kg)

2. Unloosen the starter clutch assembly by using the center punch.



3. Install:

- *Compression springs (1)
- *Spring caps (2)
- *Dowel pins (3)



YP404131

C.D.I. MAGNETO INSTALLATION

1. Install:

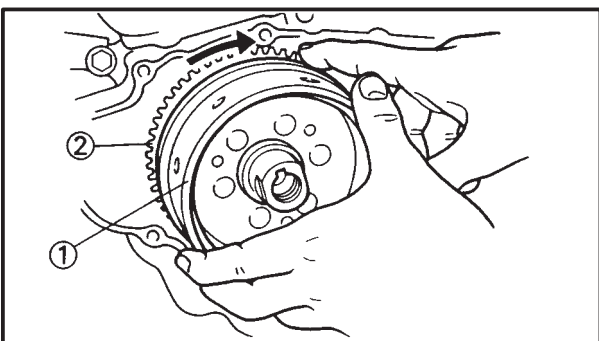
- *Shim (1)
- *Starter wheel gear (2)
- *Woodruff key (3)

2. Install:

- *C.D.I. magneto assembly (1)

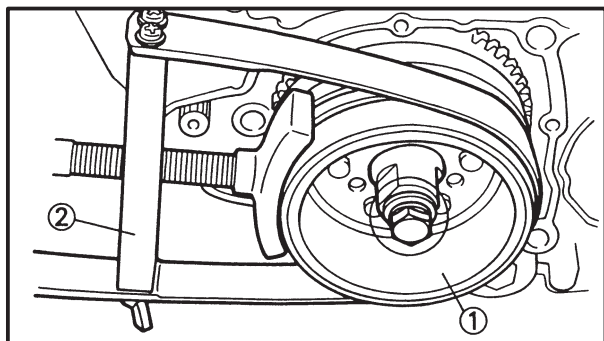
NOTE:

- *Clean the tapered portion of the crankshaft and the magneto hub.
- *When installing the magneto rotor, make sure the woodruff key is properly seated in the key way of the crankshaft and turning the stater wheel gear (2) clockwise.




CDI MAGNETO AND STARTER CLUTCH

ENG



3. Tighten:

✱CDI magneto assembly ①

 50 Nm (5.0 m·kg)

NOTE:

Tighten the bolt while holding the CDI magneto assembly with the sheave holder ②.

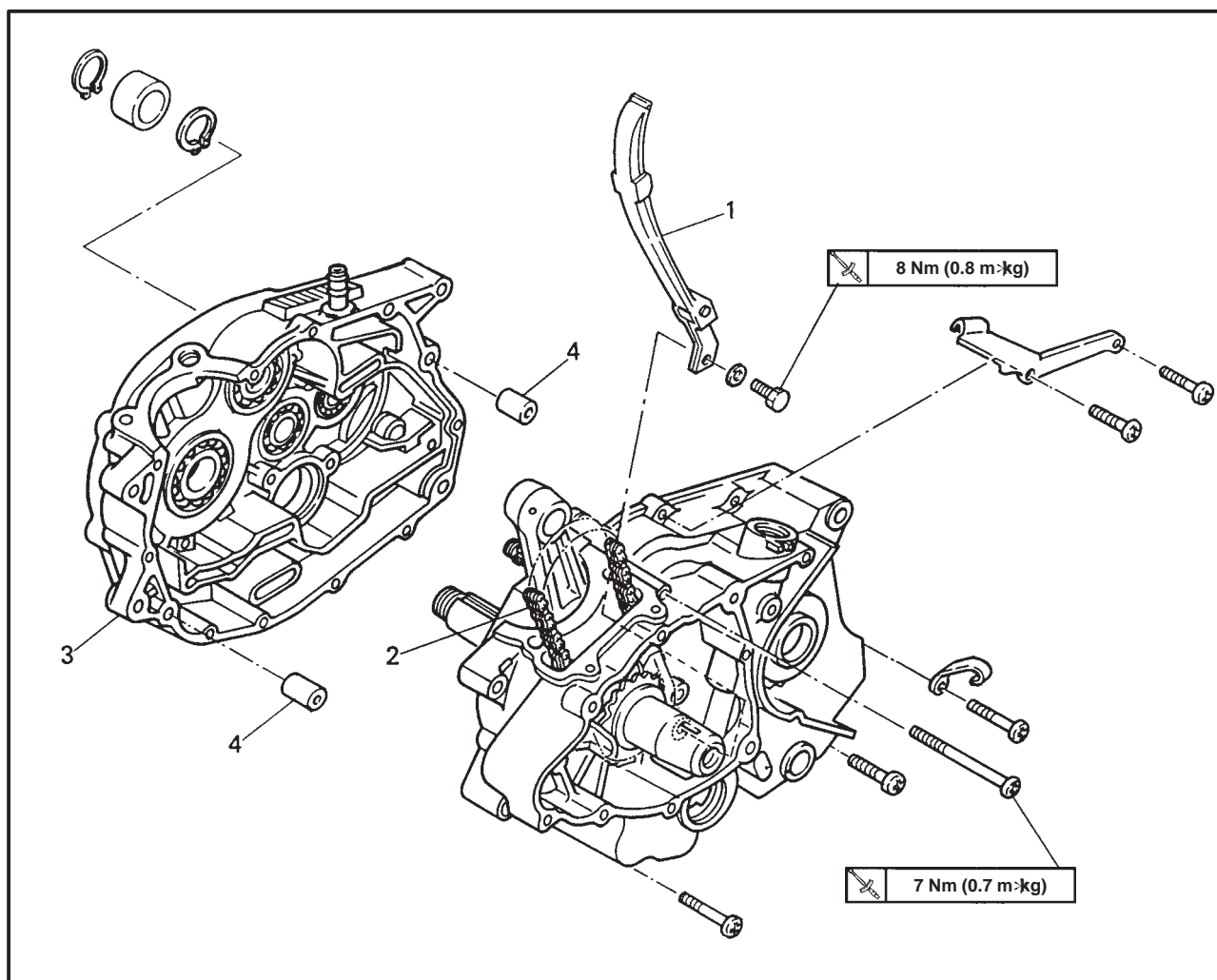


Sheave holder:
90890-01701

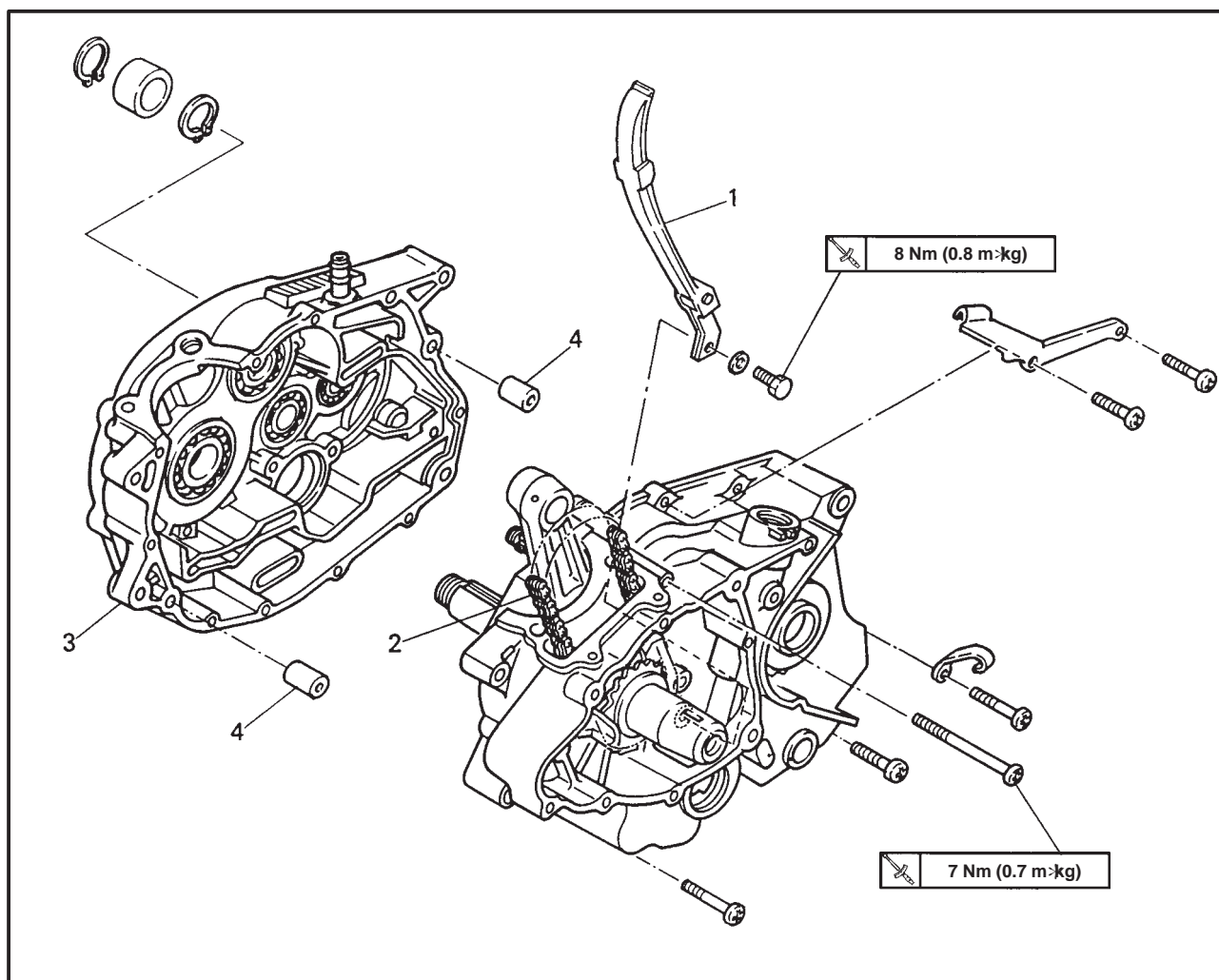


CRANK CASE AND CRANKSHAFT

CRANKCASE



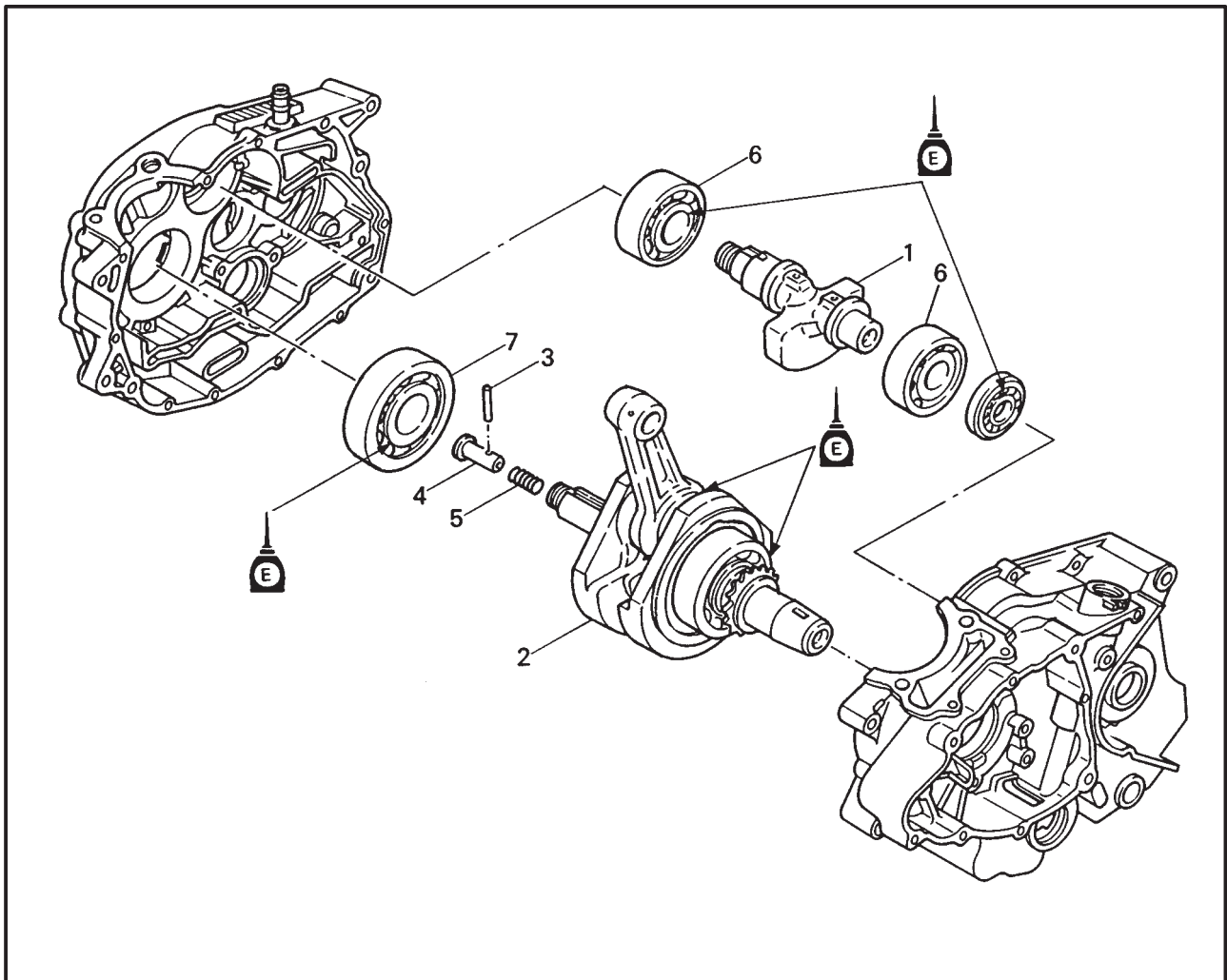
Order	Job name/Part name	Q'ty	Remarks
	Crankcase separation		
	Engine		Remove the parts in order.
	Cylinder head		Refer to "ENGINE REMOVAL" section.
	Cylinder and piston		Refer to "CYLINDER HEAD" section.
	Clutch		Refer to "CYLINDER AND PISTON" section.
	Primary drive gear/oil pump		Refer to "CLUTCH" section.
	Balancer weight drive gear		Refer to "OIL PUMP" section.
	Shift shaft and segment		Refer to "BALANCER DRIVE GEAR" section.
	CDI magneto/starter clutch		Refer to "SHIFT SHAFT AND SEGMENT" section.
1	Timing chain guide (intake)	1	Refer to "CDI MAGNETO AND STARTER CLUTCH" section.



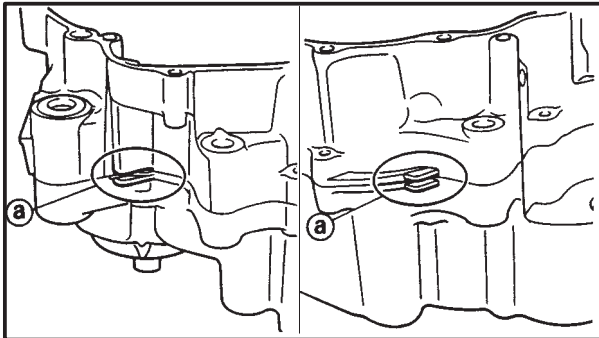
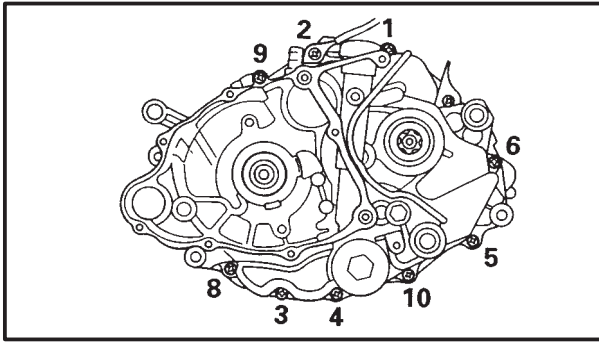
Order	Job name/Part name	Q'ty	Remarks
2	Timing chain	1	Refer to "CRANKCASE SEPARATION/INSTALLATION" section.
3	Crankcase	1	
4	Dowel pins	2	Reverse the removal procedure for installation.



CRANKSHAFT AND BALANCER WEIGHT



Order	Job name/Part name	Q'ty	Remarks
	Crankshaft and balancer weight removal		Remove the parts in order.
1	Balancer weight	1	Refer to "BALANCER WEIGHT INSTALLATION" section.
2	Crankshaft assembly	1	
3	Dowel pin	1	Refer to "PLUNGER SEAL REMOVAL/INSTALLATION" section.
4	Plunger seal	1	
5	Compression spring	1	
6	Bearing (balancer weight)	1	
7	Bearing (crankshaft right)	1	
			Reverse the removal procedure for installation.



SR401132

CRANKCASE SEPARATION

1. Remove:

- ✧Crankcase screws

NOTE:

- ✧The numbers embossed on the crankcase indicate the tightening sequence. Loosen the screws in decreasing numerical order (see numbers on the illustration).
- ✧Loosen each screw 1/4 turn at a time and remove them after all are loose.

2. Remove:

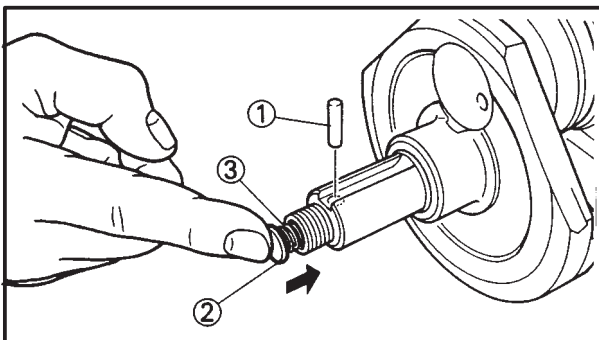
- ✧Right crankcase half

NOTE:

Set the left crankcase half under then put in the flat head screw driver to the separating slit (a).

CAUTION:

- ✧Do not use the flat head screw driver except place as shown.
- ✧The left crankcase half should be under.
- ✧Separate the crankcase after first checking that the shift cam segments and the drive axle circlip can be removed.
- ✧Do not damage the crankcase mating surfaces.



SR*****

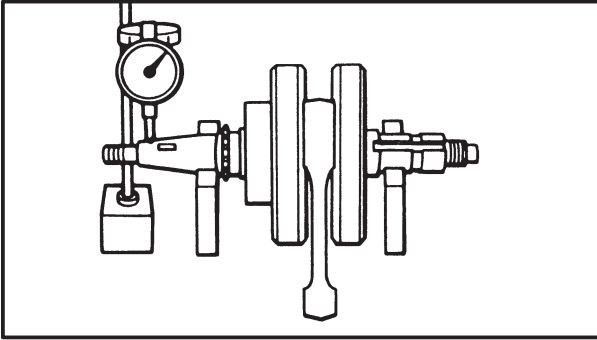
PLUNGER SEAL REMOVAL

1. Remove:

- ✧Dowel pin (1)
- ✧Plunger seal (2)
- ✧Compression spring (3)

NOTE:

Remove the plunger seal and compression spring, push the plunger seal lightly and remove the dowel pin.



T*****

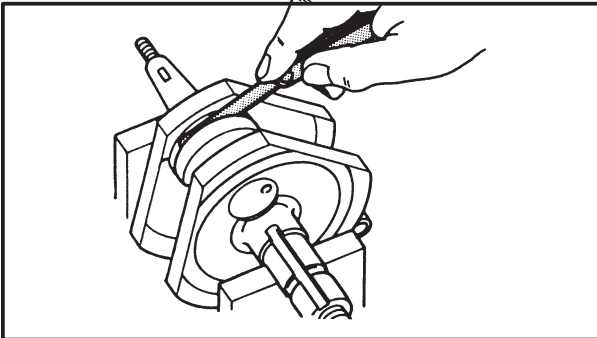
CRANKSHAFT INSPECTION

1. Measure:

- ✳Crankshaft runout
Out of specification → Replace crankshaft and/or bearing.

NOTE:

Measure the crankshaft runout with the crankshaft assembly turning slowly.



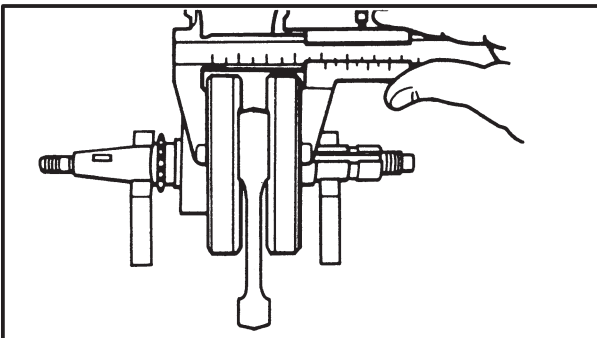
Runout limit:
0.03 mm

2. Measure:

- ✳Big end side clearance
Out of specification → Replace big end bearing, crank pin and/or connecting rod.



Big end side clearance:
0.35 × 0.65 mm
Limit
0.1 mm

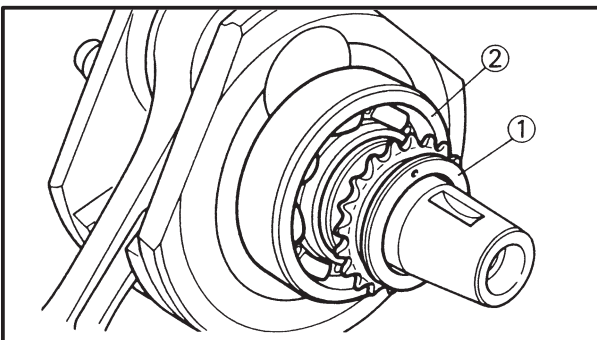


3. Measure:

- ✳Crank width
Out of specification → Replace crankshaft.

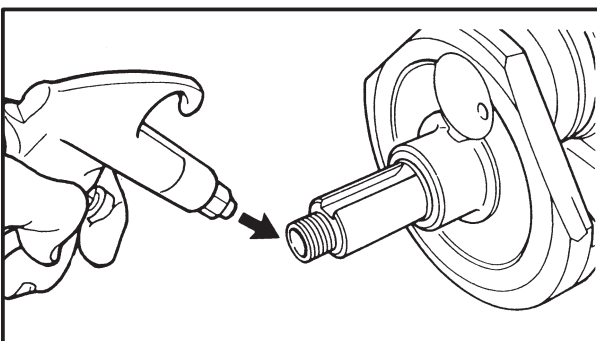


Crank width:
55.95 × 56.00 mm



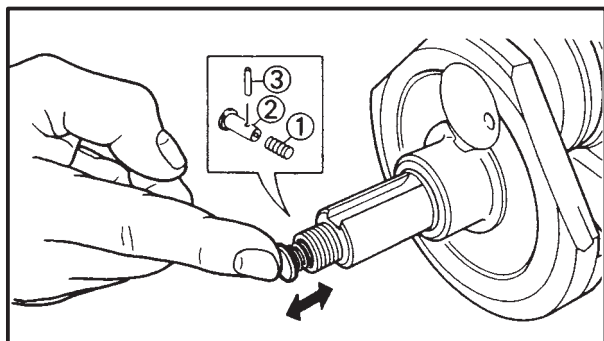
4. Inspect:

- ✳Timing chain sprocket ①
Wear/Damage → Replace crankshaft.
- ✳Bearing ②
Wear/Crack/Damage → Replace crankshaft.



5. Inspect:

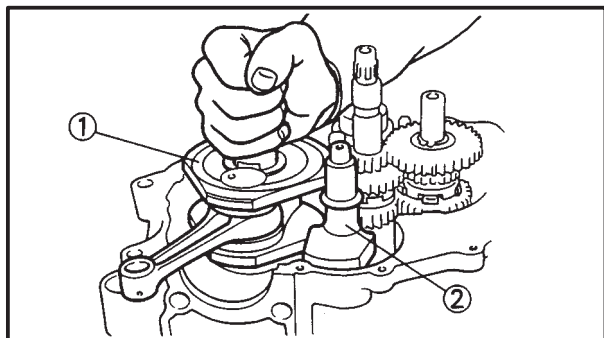
- ✳Crankshaft journal
Clogged → Blow out the journal with compressed air.



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PLUNGER SEAL INSTALLATION

1. Install:
 - *Compression spring ①
 - *Plunger seal ②
 - *Dowel pin ③
2. Check the plunger seal smooth operation pushing the plunger seal by your finger.



T*****

BALANCER WEIGHT INSTALLATION

1. Install:
 - *Crankshaft assembly ①
 - *Balancer weight assembly ②

CAUTION:

Do not use the hammer forcefully during installation of the crankshaft. Damage the crankcase oil seal lip and gear teeth.

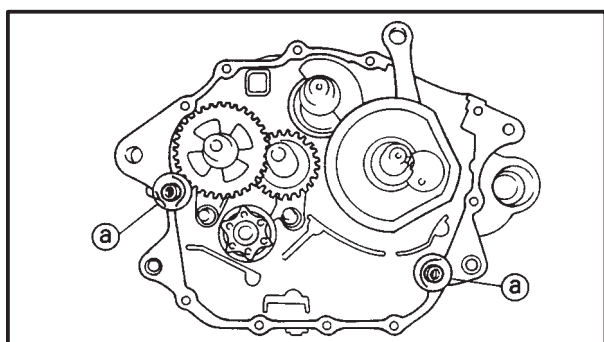
SR404073

CRANKCASE INSTALLATION

1. Clean all the gasket mating surface and crankcase mating surface thoroughly.
2. Apply:
 - *Sealant (onto the crankcase mating surfaces)

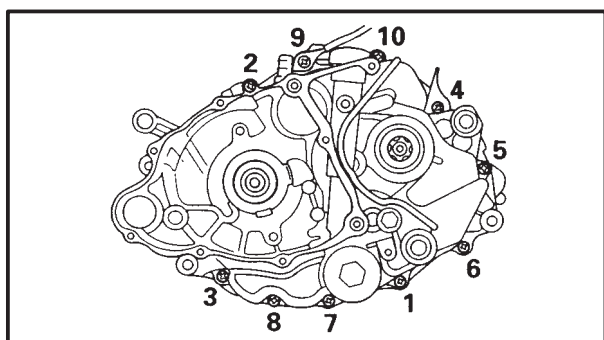


Yamaha bond No.1215:
90890-85505



NOTE:

DO NOT ALLOW any sealant to come in contact with the oil gallery (a).



3. Tighten:
 - *Crankcase right half

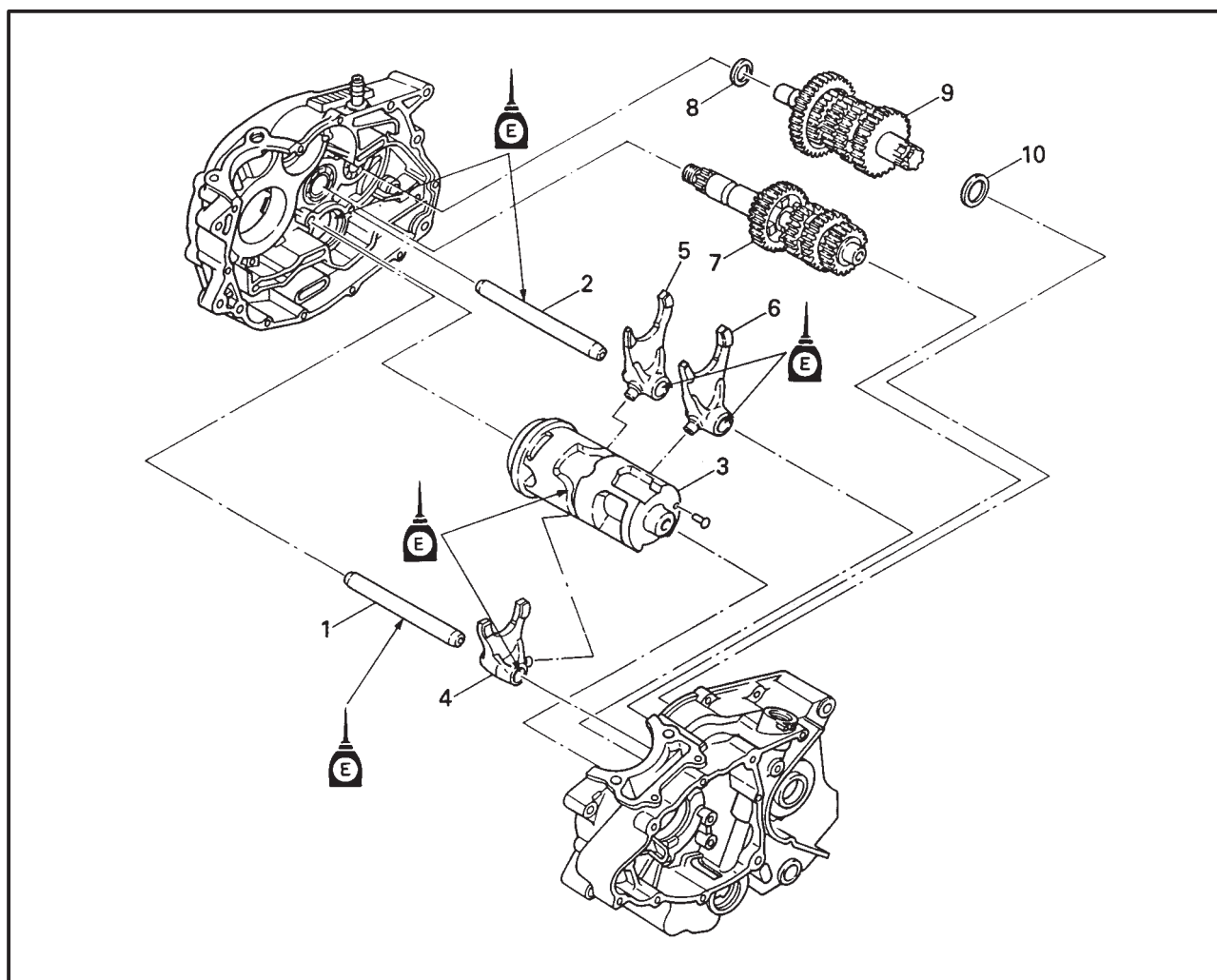
7 Nm (0.7 m·kg)

NOTE:

Tighten the screws in decreasing numerical order (see numbers on the illustration).



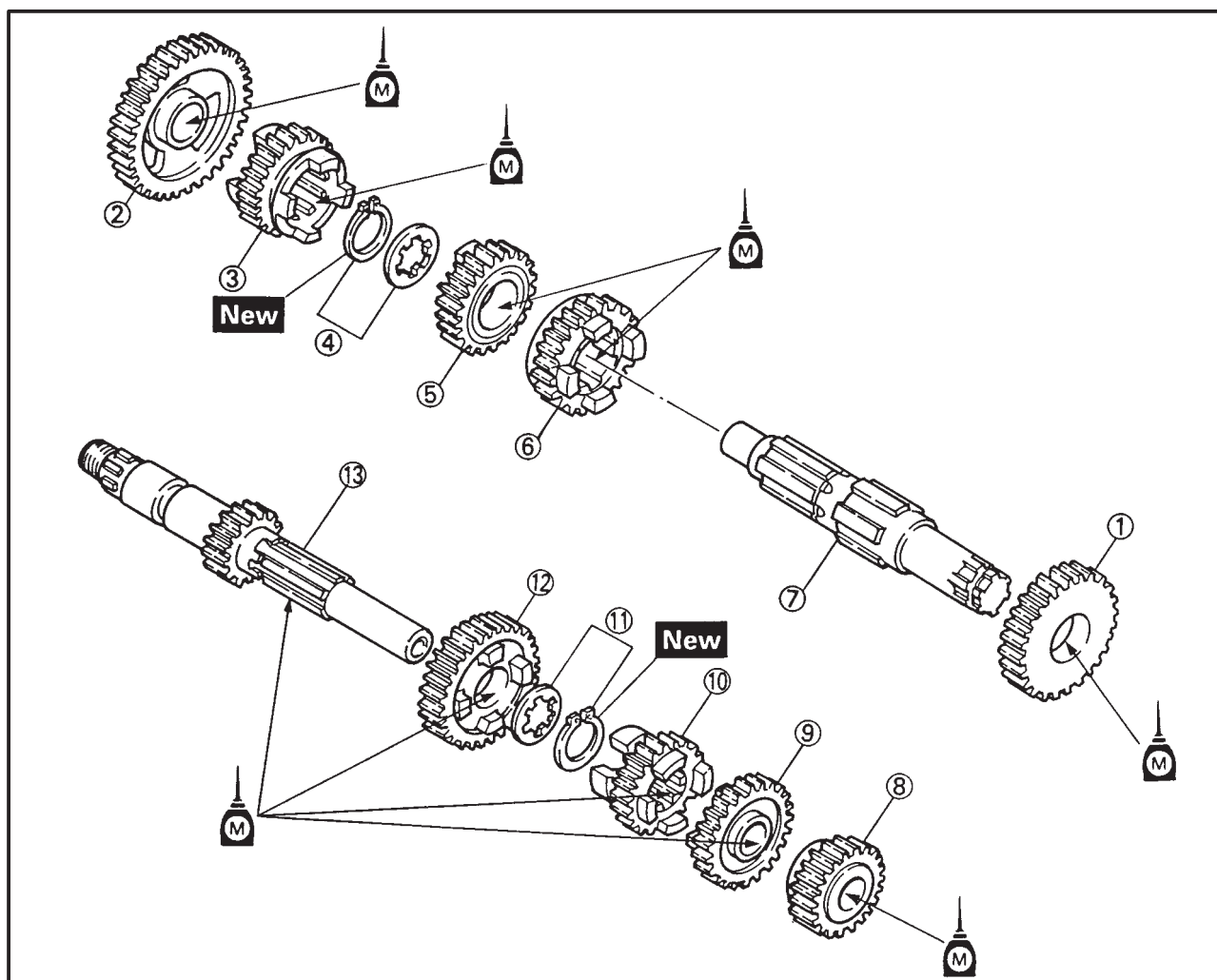
TRANSMISSION, SHIFT CAM AND SHIFT FORK



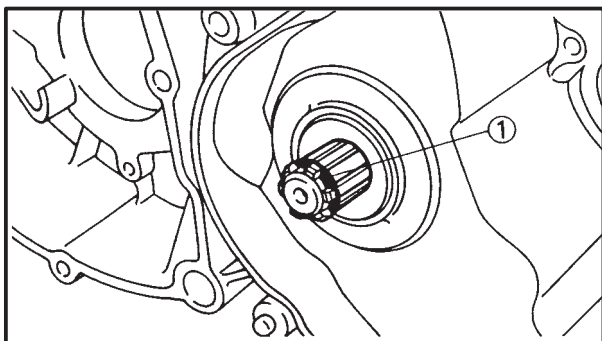
Order	Job name/Part name	Q'ty	Remarks
	Transmission, shift cam and shift fork removal		Remove the parts in order.
	Crankcase separating		Refer to "CRANKCASE AND CRANKSHAFT" section.
1	Shift fork guide bar 2 (short length)	1	Refer to "TRANSMISSION, SHIFT CAM AND SHIFT FORK INSTALLATION" section.
2	Shift fork guide bar 1 (long length)	1	
3	Shift cam	1	
4	Shift fork 1 "C" (center)	1	
5	Shift fork 2 "R" (right)	1	
6	Shift fork 3 "L" (left)	1	
7	Main axle assembly	1	Refer to "TRANSMISSION, SHIFT CAM AND SHIFT FORK REMOVAL/ INSTALLATION" section.
8	Plate washer	1	
9	Drive axle assembly	1	
10	Plate washer	1	
			Reverse the removal procedure for installation.



DRIVE AXLE AND MAIN AXLE



Order	Job name/Part name	Q'ty	Remarks
	Drive axle and main axle disassembly		Disassemble the parts in order.
①	Second wheel gear	1	
②	First wheel gear	1	
③	Fifth wheel gear	1	
④	Circlip/washer	1/1	
⑤	Third wheel gear	1	
⑥	Forth wheel gear	1	
⑦	Drive axle	1	
⑧	Second pinion gear	1	
⑨	Forth pinion gear	1	
⑩	Third pinion gear	1	
⑪	Circlip/washer	1/1	
⑫	Fifth pinion gear gear	1	
⑬	Main axle	1	
			Reverse the disassembly procedure for assembly.

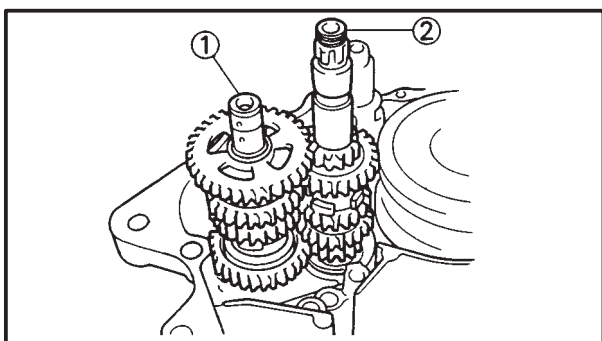


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TRANSMISSION, SHIFT CAM AND SHIFT FORK REMOVAL

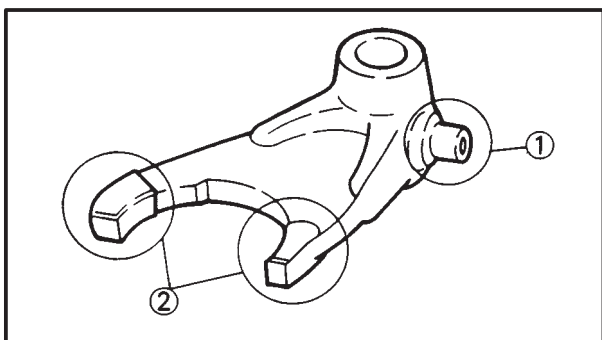
1. Install:

- ✳O-Ring ①
- To the drive sprocket groove.



2. Remove:

- ✳Drive axle assembly ①
- ✳Main axle assembly ②
- Remove them at same the time.

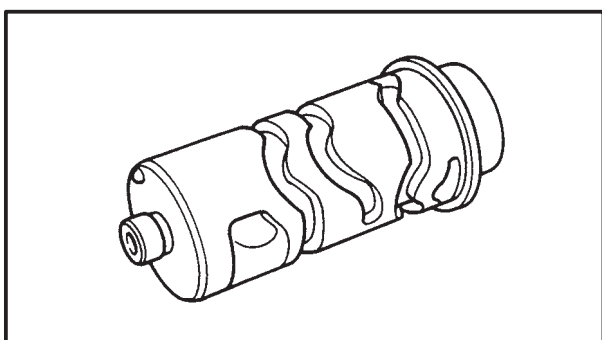


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SHIFT FORK SHIFT CAM INSPECTION

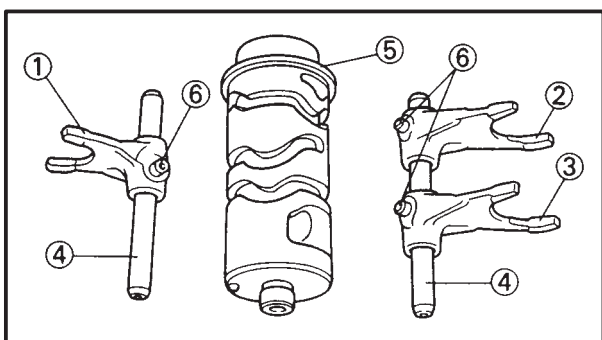
1. Inspect:

- ✳Shift fork cam follower ①
- ✳Shift fork pawl ②
- Scoring/bends/wear/damage → Replace.



2. Inspect:

- ✳Shift cam grooves
- Wear/damage/scratches → Replace.
- ✳Shift cam segment
- Damage/wear → Replace.



3. Inspect:

- ✳Shift fork 1 "C" (center) ①
- ✳Shift fork 2 "R" (right) ②
- ✳Shift fork 3 "L" (left) ③
- ✳Guide bar ④
- ✳Shift cam ⑤
- ✳Dowel pin ⑥
- Roll the guide bar on a flat surface.
- Bends → Replace.

⚠ WARNING

Do not attempt to straighten a bent guide bar.



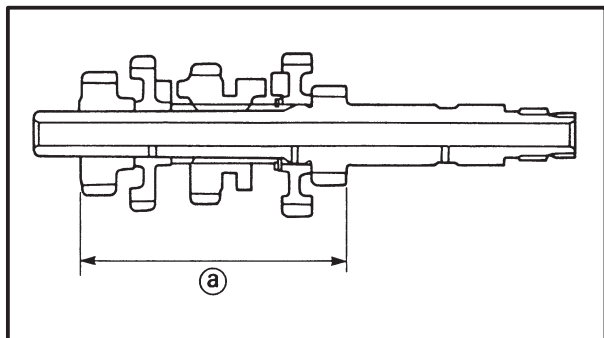
4. Check:

- ✧ Shift fork movement
(on the guide bar)

Unsmooth operation → Replace the shift fork and the guide bar.

NOTE:

When damaged the shift fork and mission gear, replace the facing each gear as set.



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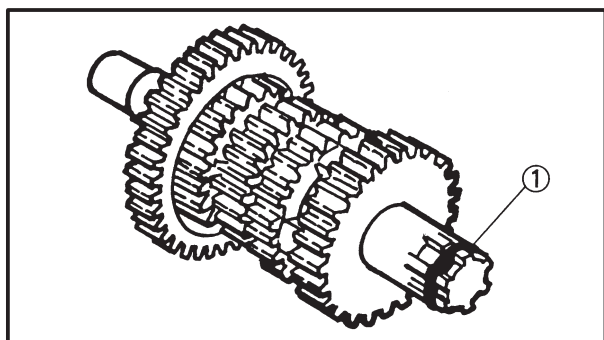
TRANSMISSION, SHIFT CAM AND SHIFT FORK INSTALLATION

1. Measure:

- ✧ Main axle assembled length ①



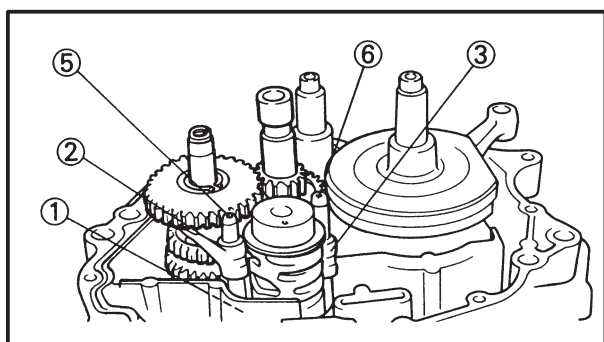
Assembled length (main axle):
90.9 × 91.1 mm



2. Install:

- ✧ O-ring ①

To the drive sprocket folder groove.

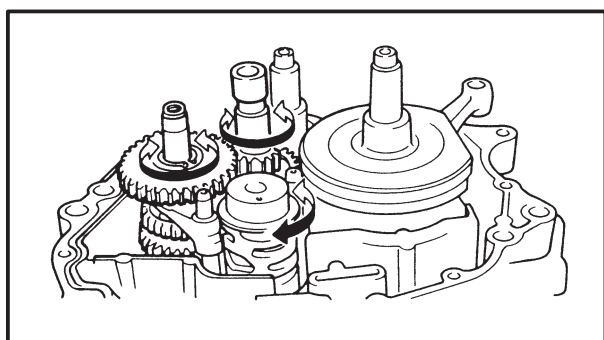


3. Install:

- ✧ Shift fork 3 "L" (left) ①
(face the "L" side for the clutch side.)
- ✧ Shift fork 2 "R" (right) ②
(face the "R" side for the clutch side.)
- ✧ Shift fork 1 "C" (center) ③
(face the "C" side for the magneto side.)
- ✧ Shift fork guide bar 1 ④ (long)
- ✧ Shift fork guide bar 2 ⑤ (short)

NOTE:

Install the shift forks with the embossed mark to the right and in sequence (R, C, L) beginning from the right.



4. Check:

- ✧ Shift cam operation

Unsmooth operation → Repair.

NOTE:

Check the transmission and shift forks for smooth operation by turning the shift cam with your hand.



CHAPTER 5. CARBURETION

CARBURETOR	5-1
CARBURETOR ASSEMBLY	5-4
FUEL LEVEL ADJUSTMENT	5-5

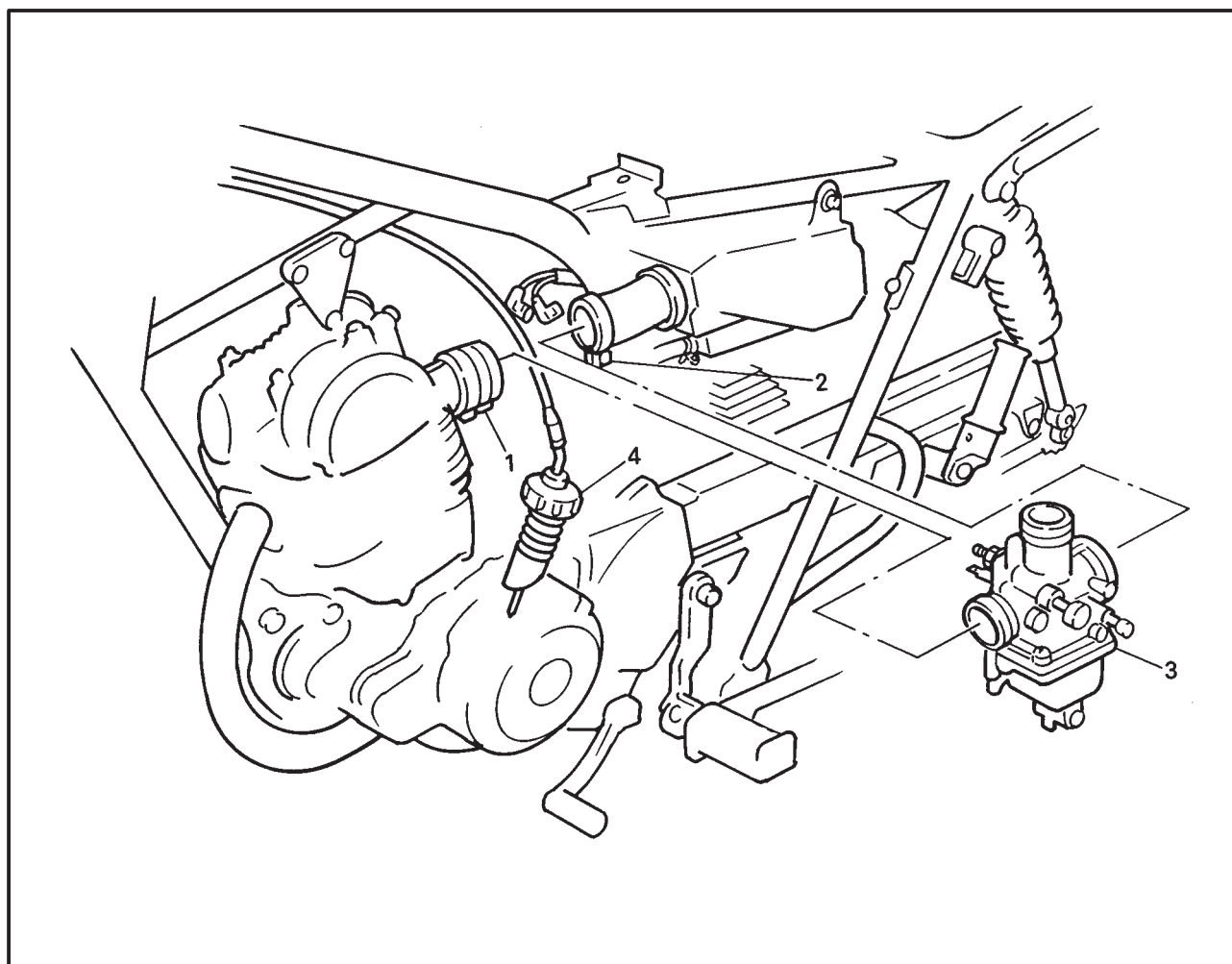


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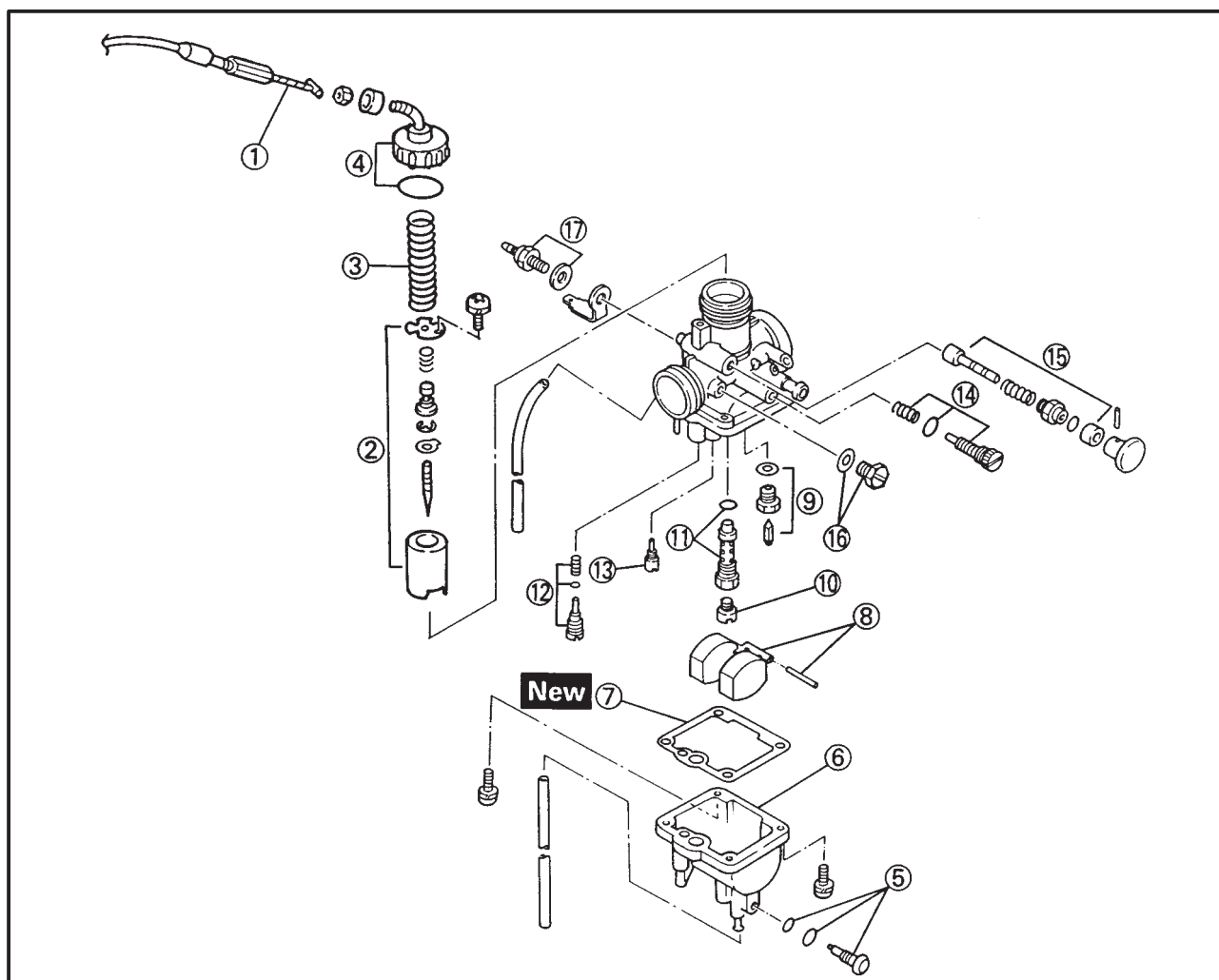
CARBURETOR



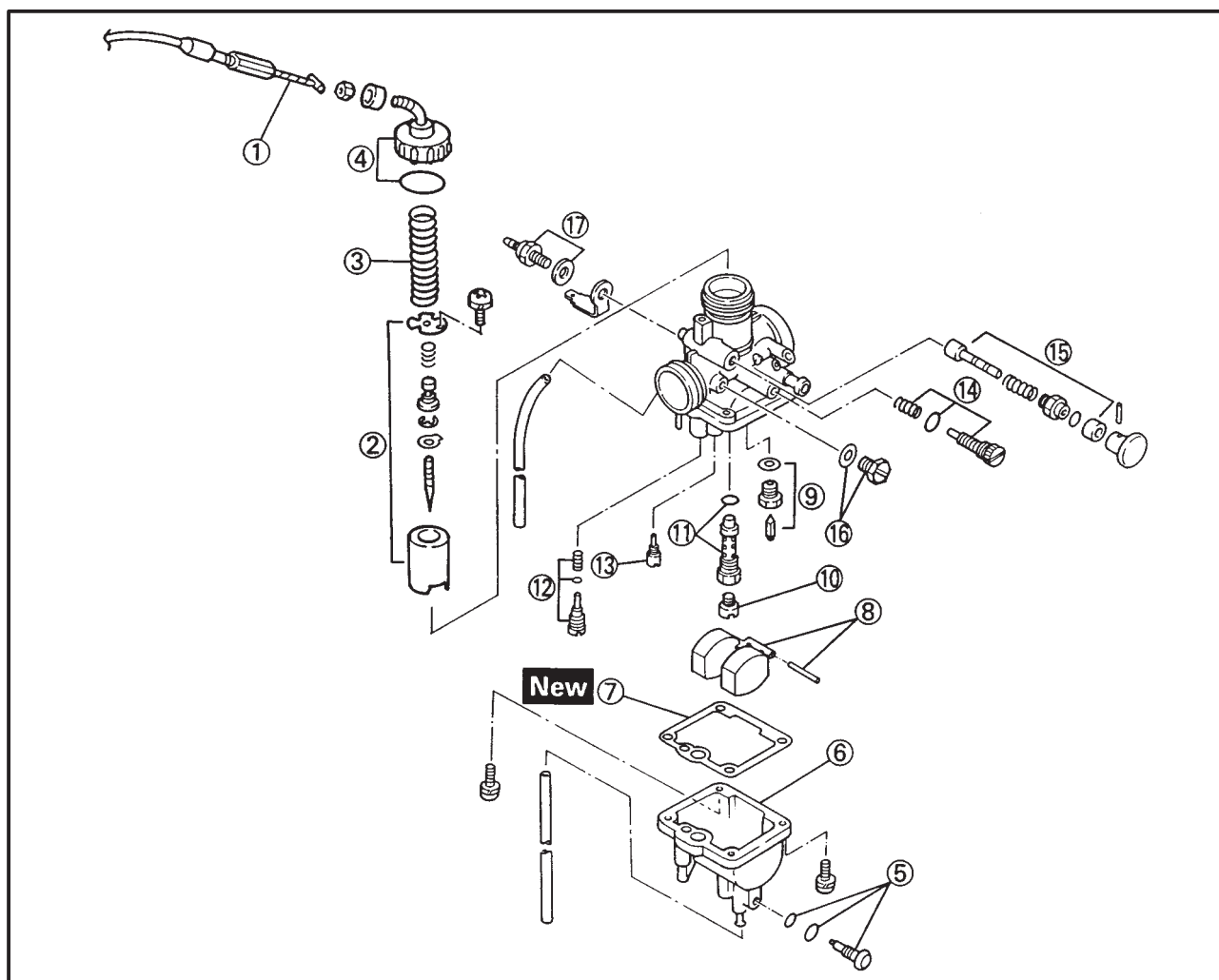
CARBURETION



Order	Job name/Part name	Q'ty	Remarks
	Carburetor removal		Remove the parts in order.
	Side cover		Refer to "SIDE COVER, SEAT AND FUEL TANK" section in CHAPTER 3. NOTE: _____ Disconnect the cable from wireharness.
	Seat		
	Fuel tank		
	Heater unit lead		
1	Carburetor joint clamp screw	1	NOTE: _____ Loosen.
2	Air filter joint clamp screw	1	
3	Carburetor assembly	1	
4	Carburetor top	1	
			Reverse the removal procedure for installation.



Order	Job name/Part name	Q'ty	Remarks
	Carburetor disassembly		Disassemble the parts in order.
①	Throttle cable	1	
②	Throttle valve assembly	1	
③	Throttle valve spring	1	
④	Mixing chamber top/O-ring	1/1	
⑤	Drain screw assembly	1	
⑥	Float chamber	1	
⑦	Gasket (float chamber)	1	
⑧	Float pin/float	1/1	
⑨	Needle valve assembly	1	Refer to "CARBURETOR ASSEMBLY" section.
⑩	Main jet	1	
⑪	Main nozzle/O-ring	1/1	



Order	Job name/Part name	Q'ty	Remarks
⑫	Pilot screw assembly	1	Refer to "CARBURETOR ASSEMBLY" section.
⑬	Pilot jet	1	
⑭	Throttle stop screw assembly	1	
⑮	Starter plunger assembly	1	
⑯	Screw/gasket	1/1	Reverse the disassembly procedure for assembly.
⑰	Heater unit/washer	1/1	

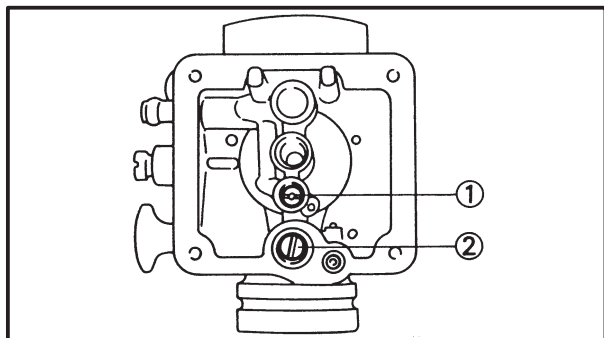


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CARBURETOR ASSEMBLY

CAUTION:

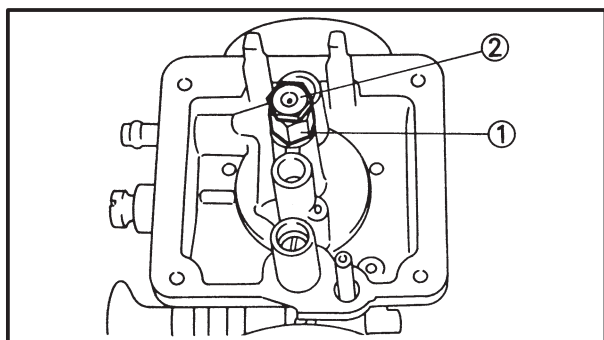
- *Do not use a wire for cleaning.
- *Before assembling, wash all parts in clean petroleum based solvent.
- *Always use a new gasket.



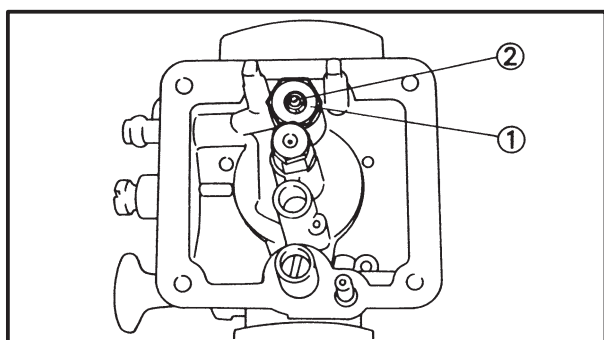
1. Install:
 - *Pilot jet ①
 - *Pilot screw assembly ②



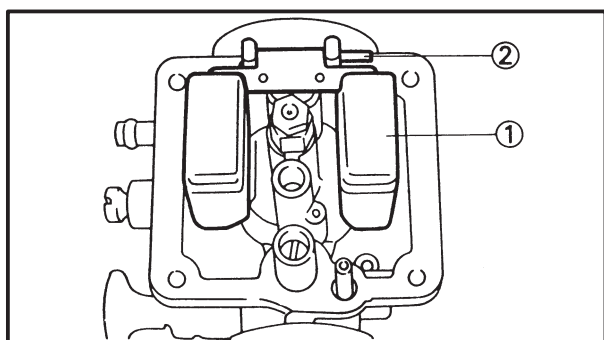
Pilot screw (turn out):
2 turns out



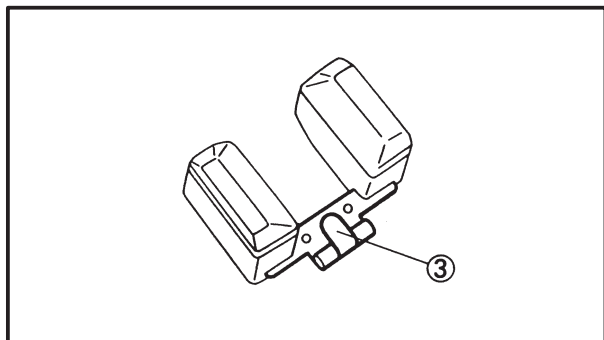
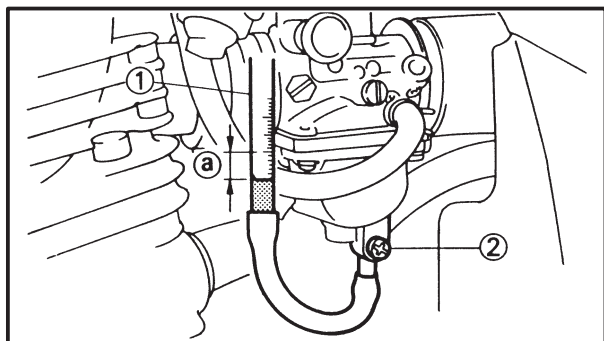
2. Install:
 - *O-ring **New**
 - *Main nozzle ①
 - *Main jet ②



3. Install:
 - *Valve seat ①
 - *Needle valve ②



4. Install:
 - *Float ①
 - *Float pin ②



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FUEL LEVEL ADJUSTMENT

1. Measure:

✧ Fuel level (a)

Out of specification → Adjust.



Fuel level:

**2.5 × 3.5 mm below the
float chamber line**

Measurement and adjustment steps:

- ✧ Place the motorcycle on a level surface.
- ✧ Put a garage jack under the engine to ensure that the carburetors are positioned vertically.
- ✧ Connect the fuel level gauge (1) to the drain pipe (2).



Fuel level gauge:

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- ✧ Loosen the drain screw (3).
- ✧ Hold the gauge vertically next to the float chamber line.
- ✧ Measure the fuel level (a) with the gauge.
- ✧ If the fuel level is incorrect, adjust the fuel level.
- ✧ Remove the carburetor.
- ✧ Inspect the valve seat and needle valve.
- ✧ If either is worn, replace them both.
- ✧ If both are fine, adjust float level by bending the float tang (4) slightly.
- ✧ Install the carburetor.
- ✧ Recheck the fuel level.

CHAPTER 6. CHASSIS

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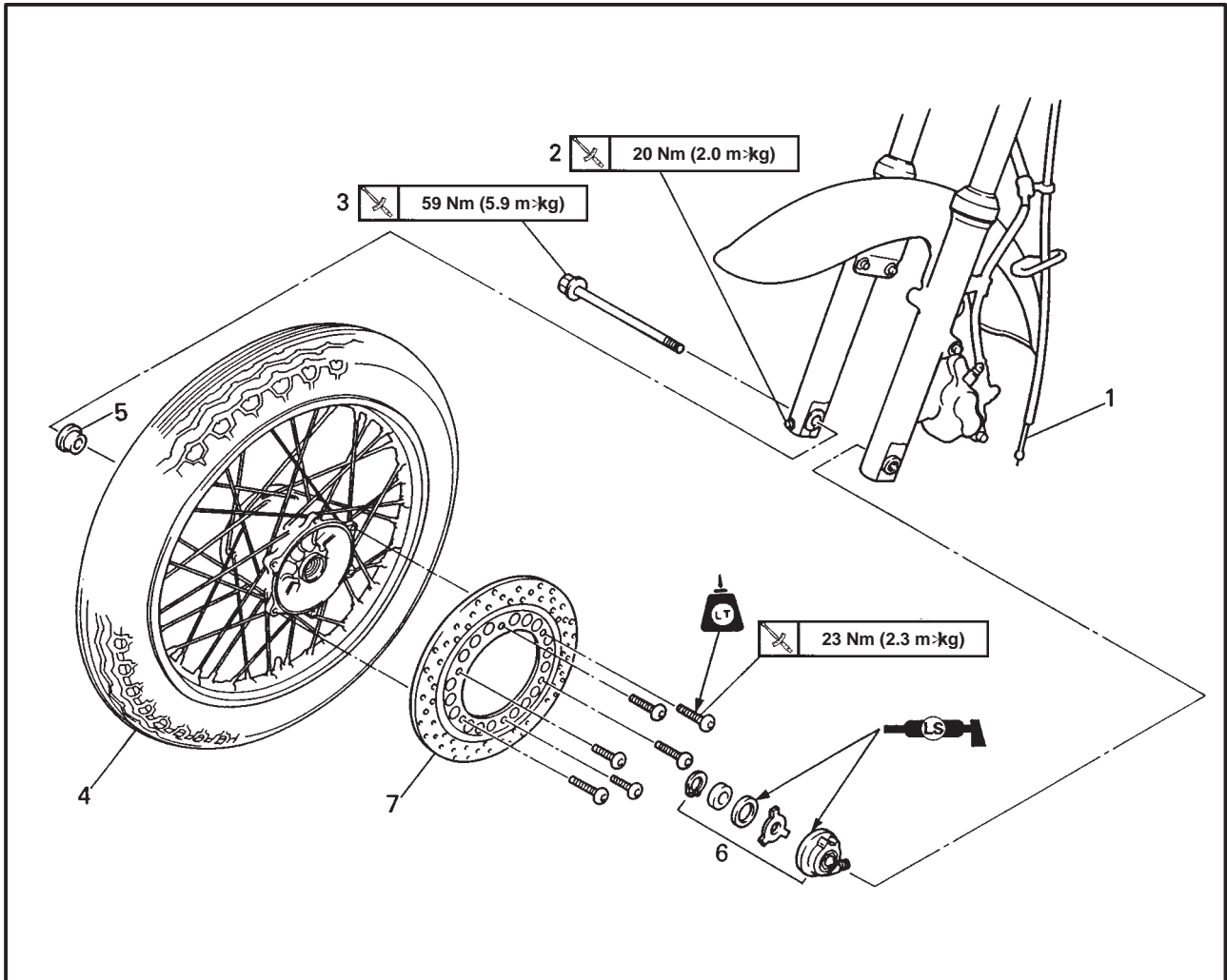
REAR SHOCK ABSORBER AND SWINGARM 6-43

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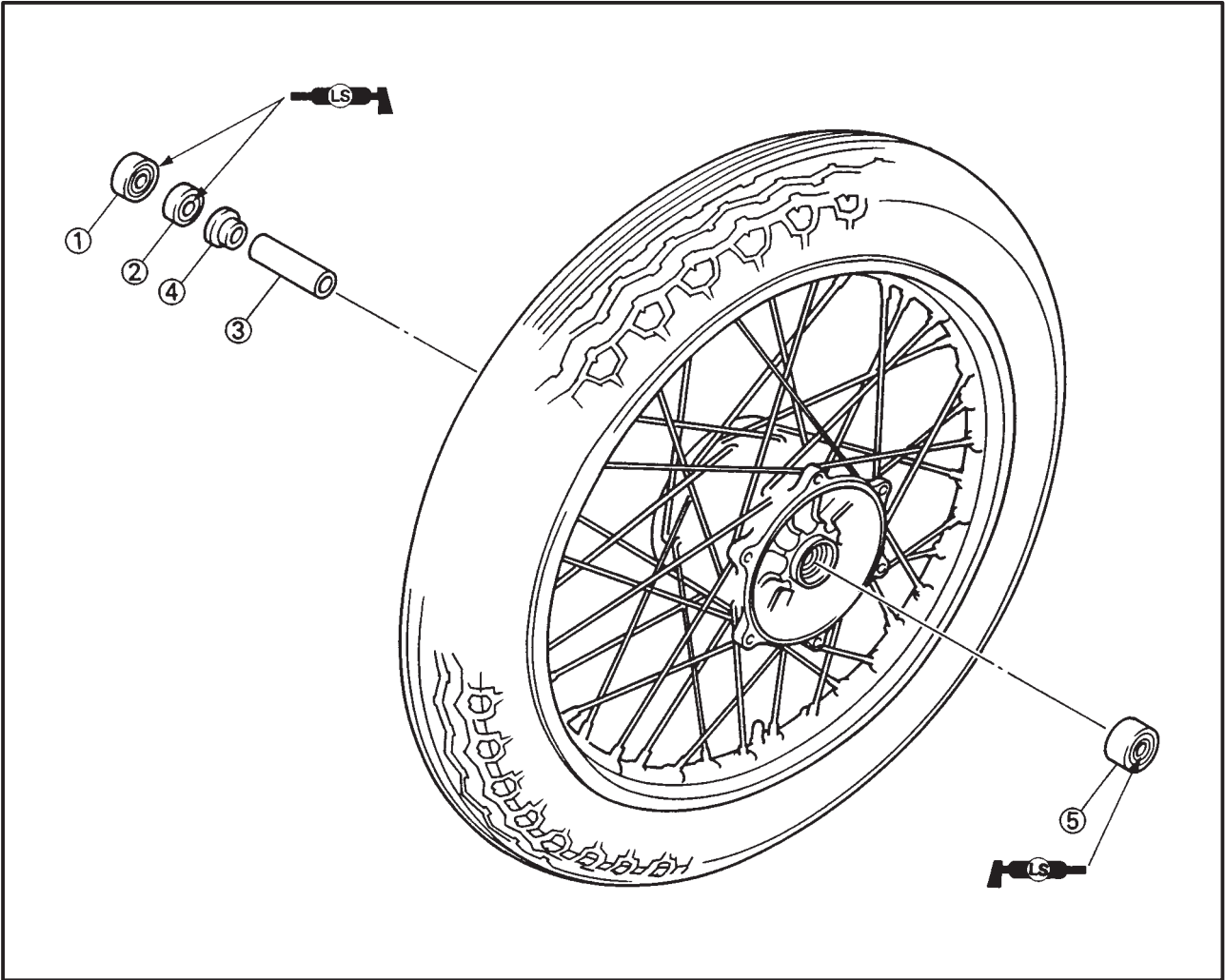


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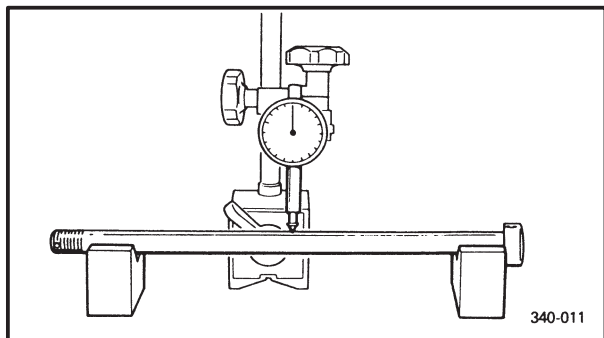
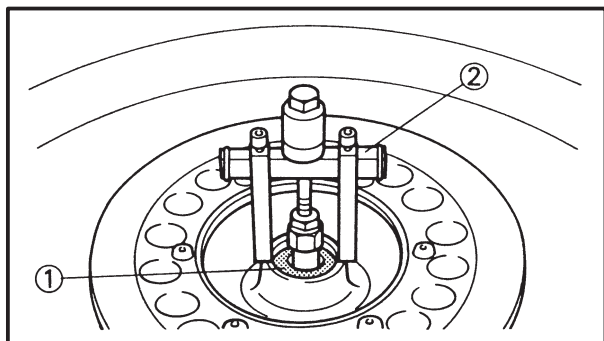
CHASSIS FRONT WHEEL AND BRAKE DISC



Order	Job name/Part name	Q'ty	Remarks
	Front wheel and brake disc removal		Remove the parts in order.
1	Speedometer cable	1	<div> ⚠ WARNING </div> <div> Securely support the motorcycle so there is no danger of it falling over. </div> <div> NOTE: </div> <div> Loosen the axle pinch bolt. </div> <div> Refer to "FRONT WHEEL INSTALLATION" section. </div> <div> Refer to "FRONT WHEEL ASSEMBLY" section. </div> <div> Reverse the removal procedure for installation. </div>
2	Axle pinch bolt	1	
3	Wheel axle	1	
4	Front wheel assembly	1	
5	Collar	1	
6	Meter gear unit assembly	1	
7	Brake disc	1	



Order	Job name/Part name	Q'ty	Remarks
①	Front wheel disassembly Oil seal	1	Disassemble the parts in order. Refer to "FRONT WHEEL ASSEMBLY" section.
②	Bearing	1	Refer to "FRONT WHEEL DISASSEMBLY/ASSEMBLY" section.
③	Spacer	1	
④	Spacer flange	1	
⑤	Bearing	1	
			Reverse the disassembly procedure for reassembly.



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FRONT WHEEL DISASSEMBLY

1. Remove:

✳ Bearings ①

✳ Spacer

Remove the bearings using a general bearing puller ②.

CAUTION:

Handle the wheel with care not to damage the brake disc. If the brake disc is damaged, replace.

T700021

FRONT WHEEL INSPECTION

1. Inspect:

✳ Front wheel axle

(by rolling it on a flat surface)

Bends → Replace.

⚠ WARNING

Do not attempt to straighten a bent axle.



Wheel axle bending limit:
0.25 mm

2. Inspect:

✳ Front tire

Wear/damage → Replace.

Refer to "TIRE INSPECTION" in CHAPTER 3.

✳ Front wheel

Refer to "WHEEL INSPECTION" in CHAPTER 3.

3. Check:

✳ Spokes

Bends/damage → Replace.

Loose spokes → Retighten.

Turn the wheel and tap the spokes with a screwdriver.

NOTE:

A tight spoke will emit a clear, ringing tone; a loose spoke will sound flat.

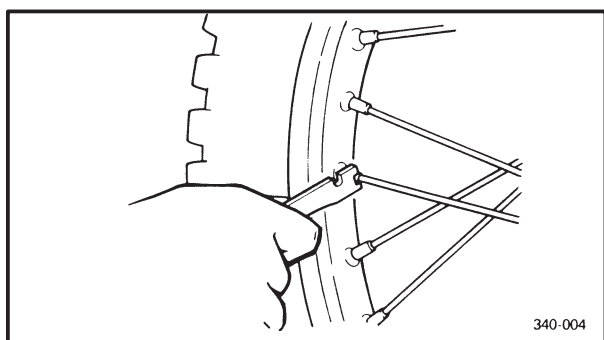
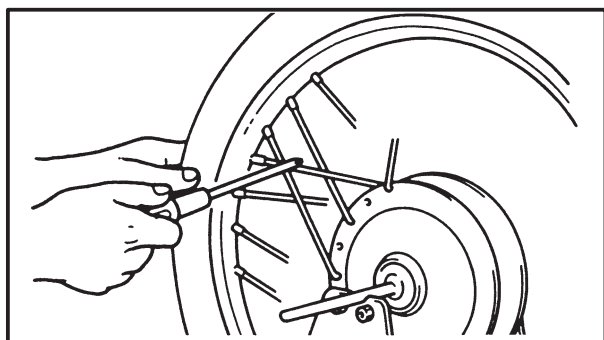
4. Tighten:

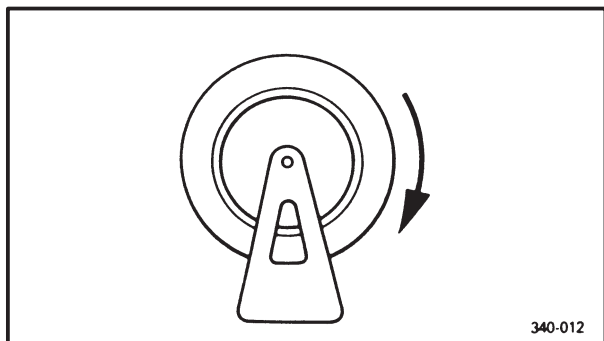
✳ Loose spokes

✳ Nipple

NOTE:

Check the front wheel runout after tightening the spokes.





5. Measure:

✳Front wheel runout

Over the specified limits → Replace.



Front wheel runout limits:

Radial ①: 2.0 mm

Lateral ②: 2.0 mm

6. Inspect:

✳Front wheel bearings

Bearings allow free play in the wheel hub or the wheel does not turn smoothly → Replace.

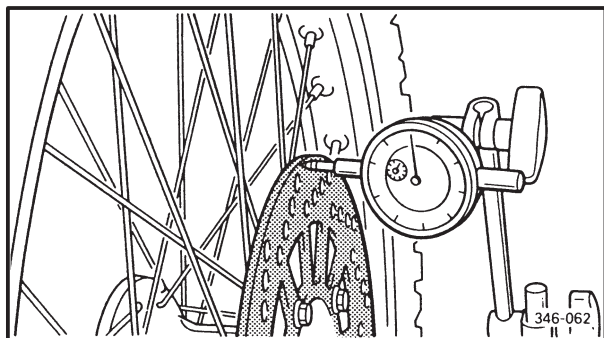
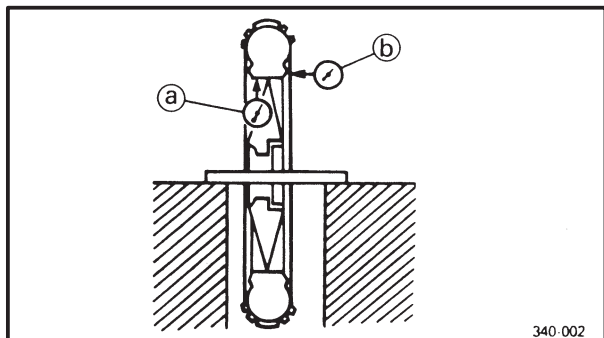
✳Oil seals

Wear/damage → Replace.

7. Inspect:

✳Collar

Grooved wear → Replace the collar and the oil seal as a set.



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BRAKE DISC INSPECTION

1. Measure:

✳Brake disc deflection



Maximum deflection:

0.15 mm

Out of specification → Replace.

2. Measure:

✳Brake disc thickness



Brake disc thickness:

4.0 mm

Minimum thickness:

3.5 mm

Out of specification → Replace.

yp*****

FRONT WHEEL ASSEMBLY

1. Install:

✳Bearing ①

✳Spacer ②

✳Spacer flange ③

✳Bearing ④

✳Oil seal ⑤

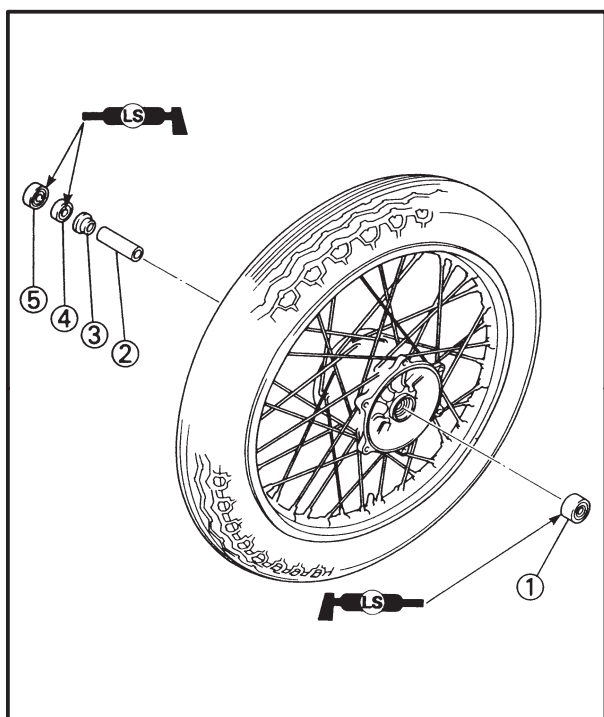
NOTE:

✳Apply the lithium soap base grease on the bearing and oil seal lip when installing.

✳Use a socket that matches the outside diameter of the race of the bearing.

✳Always use a new oil seal.

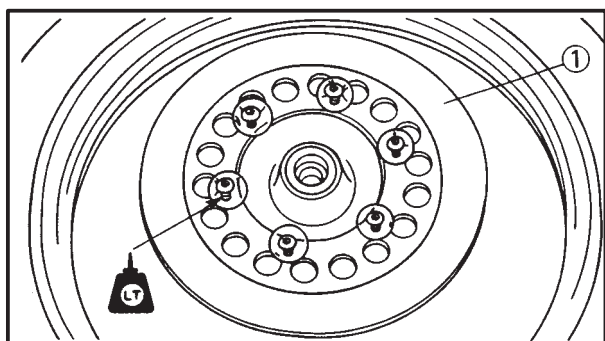
✳Install the oil seal with its manufacturer's marks or numbers facing outward.





CAUTION:

Do not strike the inner race of balls of the bearing. Contact should be made only with the outer race.



2. Install:

✱ Brake disc (1)

23 Nm (2.3 m·kg)

NOTE:

Tighten the bolts (brake disc) in stage using a crisscross pattern.

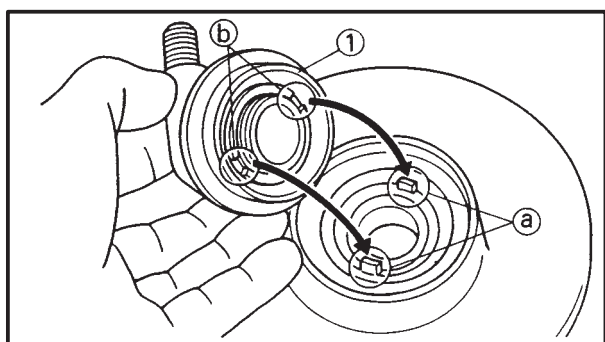
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FRONT WHEEL INSTALLATION

Reverse the "REMOVAL" procedure.
Note the following points.

1. Lubricate:

- ✱ Front wheel axle
- ✱ Bearings
- ✱ Oil seal (lips)
- ✱ Drive/driven gear (speedometer)



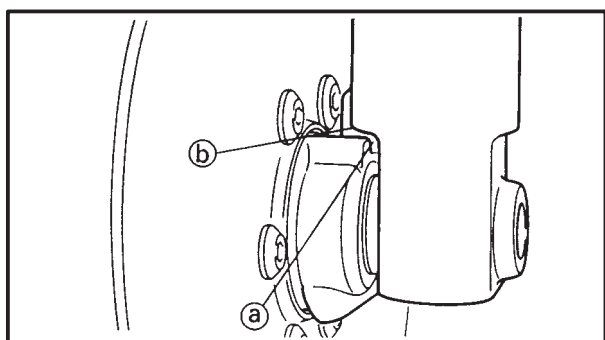
Recommended lubricant:
Lithium soap base grease

2. Install:

✱ Speedometer gear unit (1)

NOTE:

Make sure that the wheel hub and the speedometer gear unit are installed with the two projections (a) meshed into the two slots (b).



3. Install:

✱ Front wheel

NOTE:

Make sure that the slot (a) in the speedometer gear unit fits over the stopper (b) on the front fork outer tube.

FRONT WHEEL AND BRAKE DISC

CHAS



4. Tighten:

- ✱Front wheel axle
- ✱Axle pinch bolt

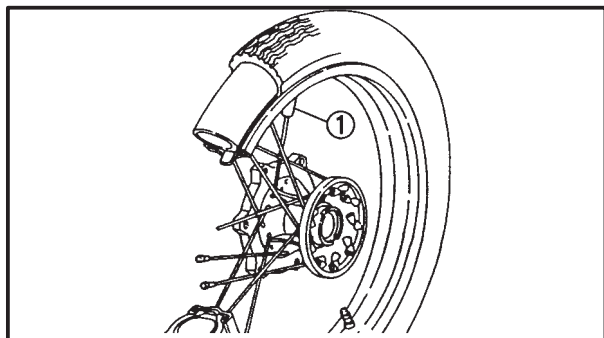
	59 Nm (5.9 m·kg)
	20 Nm (2.0 m·kg)

CAUTION:

Before tightening the wheel axle, stroke the front fork several times to check for proper fork operation.

⚠ WARNING

Make sure that the brake hose is routed properly.

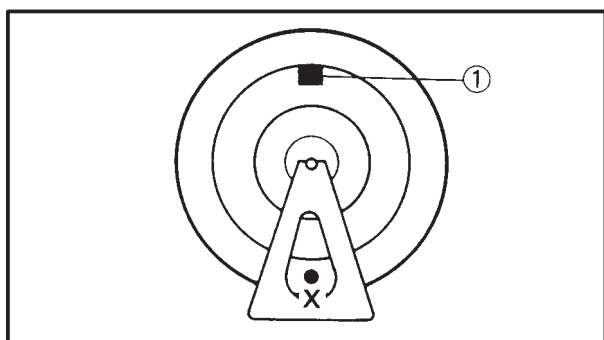
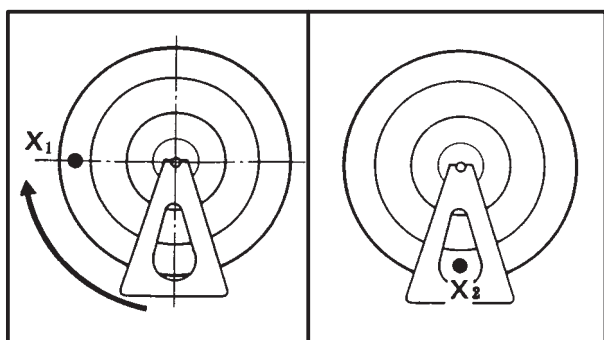
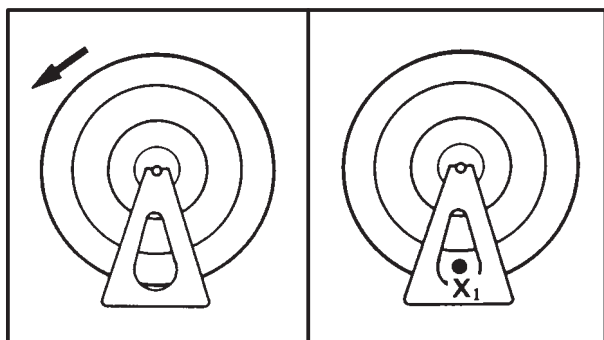


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WHEEL STATIC BALANCE ADJUSTMENT

NOTE:

- ✱After replacing the tire and/or rim, the wheel static balance should be adjusted.
- ✱Adjust the front wheel static balance with the brake disc installed.



1. Remove:

- ✱Balancing weight ①

2. Set:

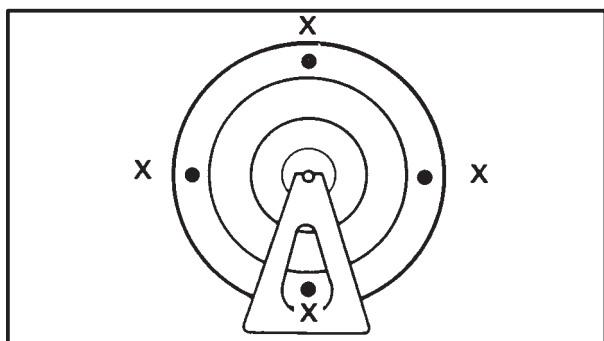
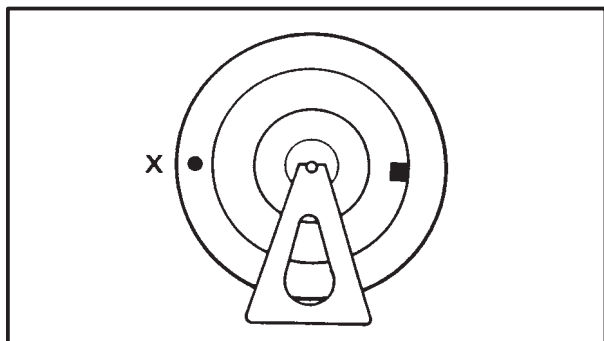
- ✱Wheel
(on a suitable stand)

3. Find:

- ✱Heavy spot

Procedure:

- a. Spin the wheel and wait for it to rest.
- b. Put an "X₁" mark on the wheel's bottom spot.
- c. Turn the wheel so that the "X₁" mark is 90° up.
- d. Release the wheel and wait for it to rest.
Put an "X₂" mark on the wheel's bottom spot.
- e. Repeat the above b., c., and d. several times until all marks come to the same spot.
- f. This spot is the wheel's heavy spot "X".



4. Adjust:

✱Wheel static balance

Adjusting steps:

✱Install a balancing weight ① on the rim exactly opposite to the heavy spot "X".

NOTE:

Start with the smallest weight.

✱Turn the wheel so that the heavy spot is 90° up.

✱Check that the heavy spot is at rest there. If not, try another weight until the wheel is balanced.

5. Check:

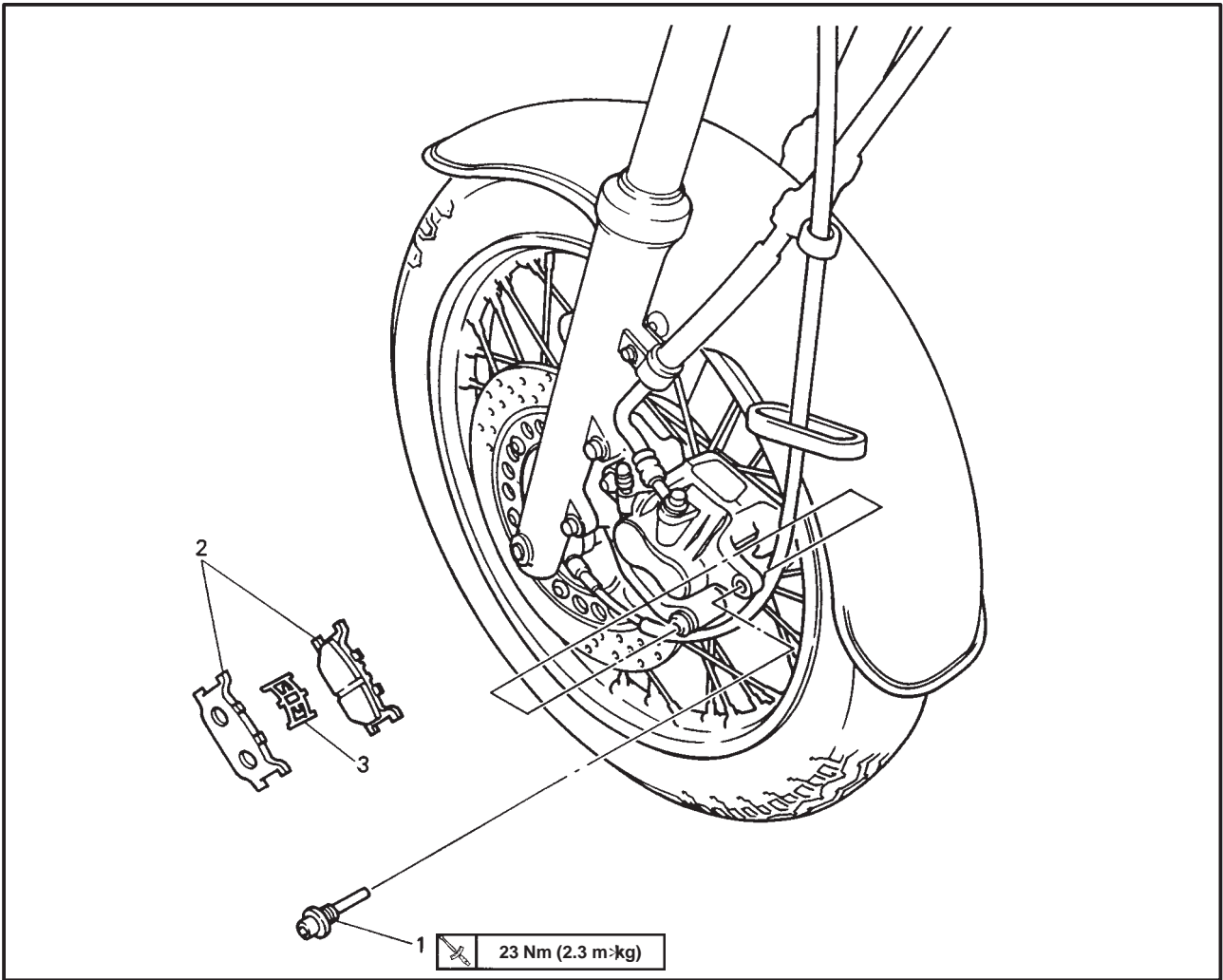
✱Wheel static balance

Checking steps:

✱Turn the wheel so that it comes to each point as shown.

✱Check that the wheel is at rest at each point. If not, readjust the front wheel static balance.

FRONT BRAKE
BRAKE PAD



Order	Job name/Part name	Q'ty	Remarks
	Brake pad removal		Remove the parts in order.
1	Bolt (caliper support bolt)	1	Refer to "BRAKE PAD REPLACEMENT" section.
2	Brake pads	2	
3	Pad support	1	
			Reverse the removal procedure for installation.

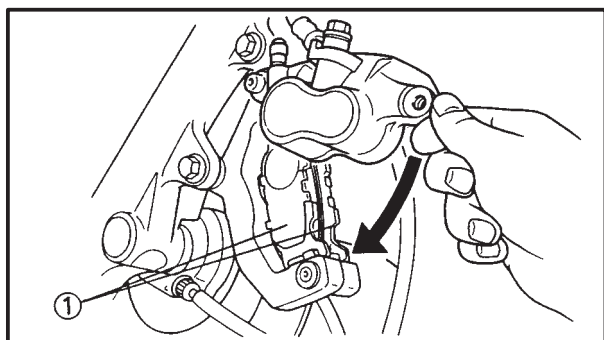
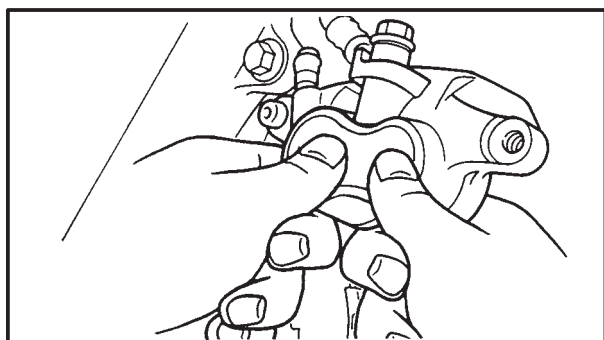
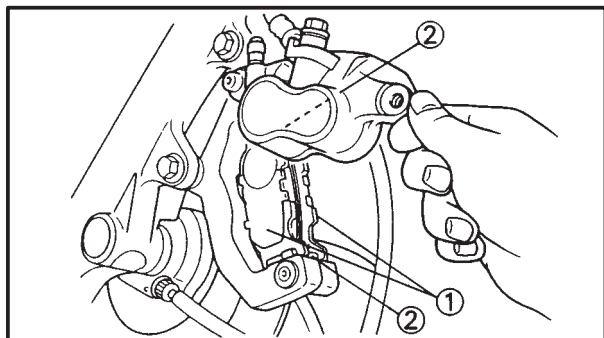
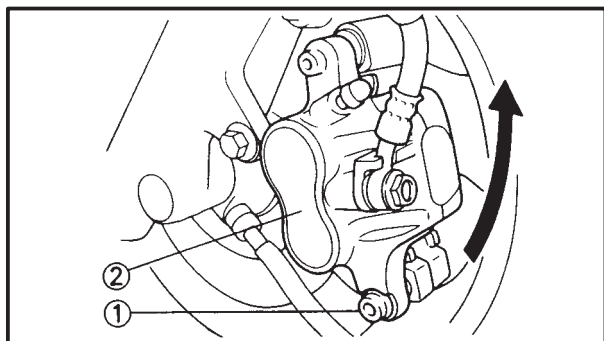


SR702010

BRAKE PAD REPLACEMENT

NOTE:

It is not necessary to disassemble the brake caliper and brake hose to replace the brake pads.



1. Remove:

✘ Bolt (caliper support bolt) ①

Move the direction brake caliper ② to the arrow mark.

2. Remove:

✘ Brake pads ①

NOTE:

✘ Install new brake pad springs ② when the brake pads have to be replaced.

✘ Replace the brake pads as a set if either is found to be worn to the wear limit.

3. Push the caliper piston into the brake caliper by finger.

CAUTION:

When pushing the caliper piston into the brake caliper, brake fluid level in reservoir tank is increasing higher.

4. Install:

✘ Brake pad ①

Install the brake pad, and move the brake caliper to the allow mark direction.

5. Install:

✘ Bolt (caliper support bolt)

23 Nm (2.3 m·kg)

6. Inspect:

✘ Brake fluid level

Refer to "BRAKE FLUID LEVEL INSPECTION" section in CHAPTER 3.

7. Check:

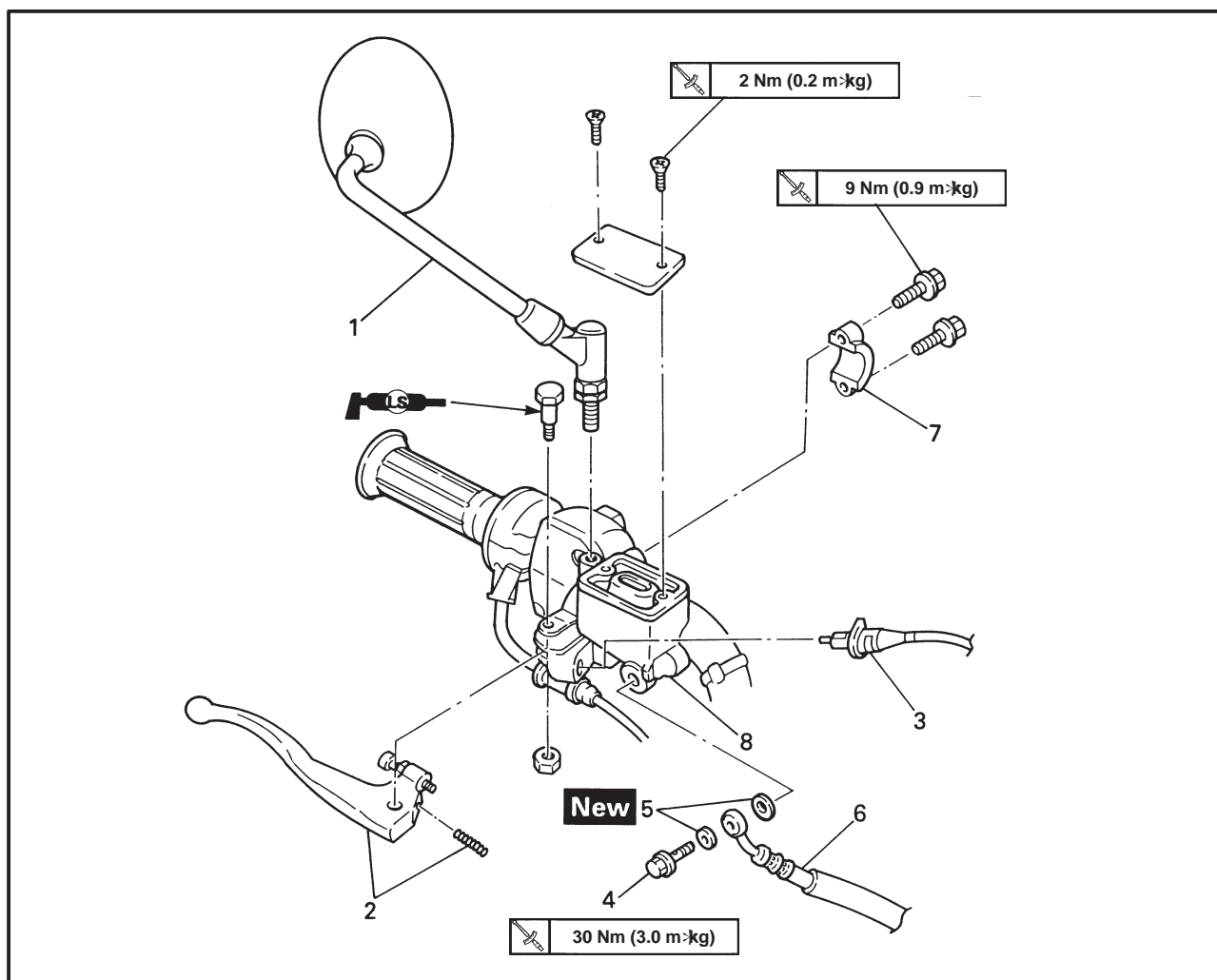
✘ Brake lever operation

Soft spongy feeling → Bleed the brake system.

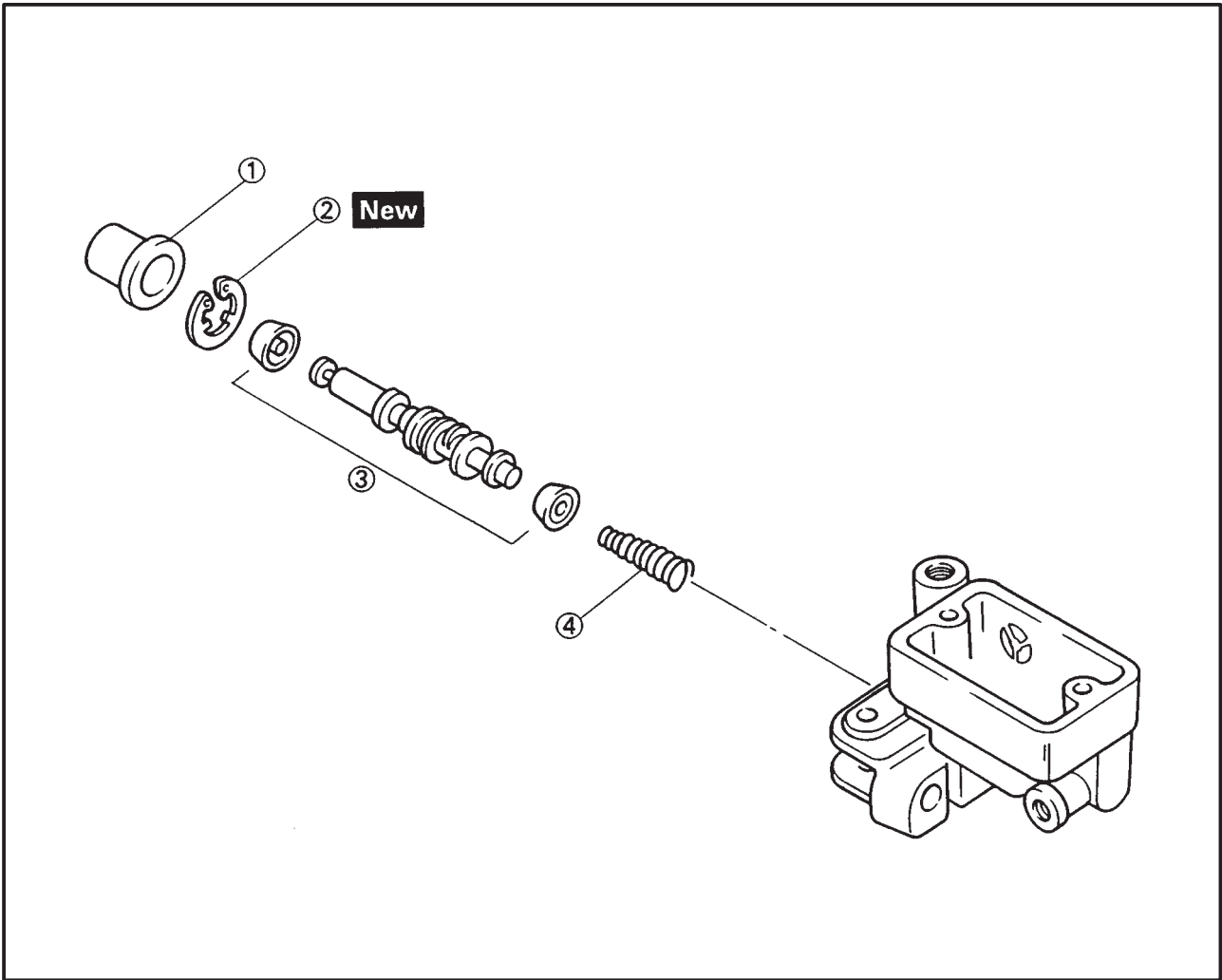
Refer to "AIR BLEEDING (HYDRAULIC BRAKE SYSTEM)" in CHAPTER 3.



MASTER CYLINDER



Order	Job name/Part name	Q'ty	Remarks
	Master cylinder removal		Remove the parts in order.
1	Drain the brake fluid	1	
2	Rear view mirror (right)	1/1	
3	Brake lever/compression spring	1	
4	Brake switch	1	
5	Union bolt	1	
6	Plate washer	2	
7	Brake hose	1	Refer to "MASTER CYLINDER INSTALLATION" section.
8	Bracket (master cylinder)	1	
	Master cylinder	1	
			Reverse the removal procedure for installation.



Order	Job name/Part name	Q'ty	Remarks
	Master cylinder disassembly		Disassemble the parts in order.
①	Rubber boots	1	Refer to "MASTER CYLINDER ASSEMBLY" section.
②	Circlip	1	
③	Master cylinder kit	1	Reverse the disassembly procedure for reassembly.
④	Spring	1	

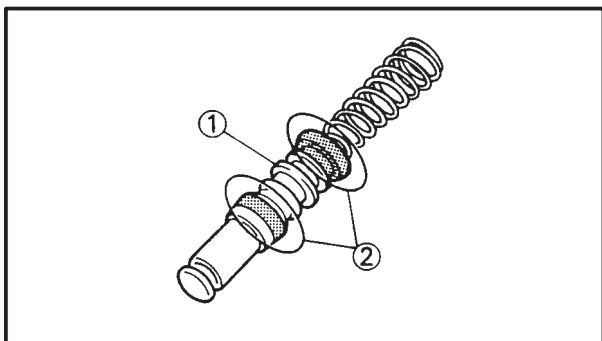


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MASTER CYLINDER INSPECTION

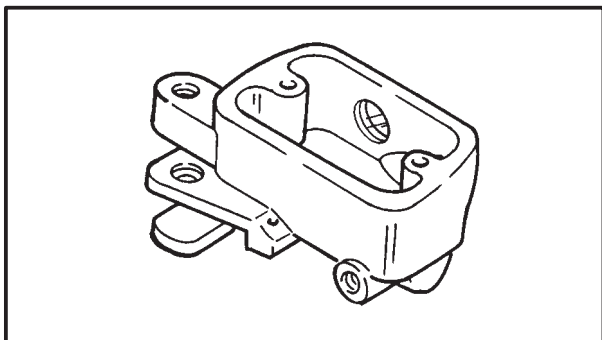
1. Inspect:

- ✱ Master cylinder piston ①
Wear/scratches → Replace the master cylinder kit.
- ✱ Master cylinder cup ②
Cracks/damage → Replace.



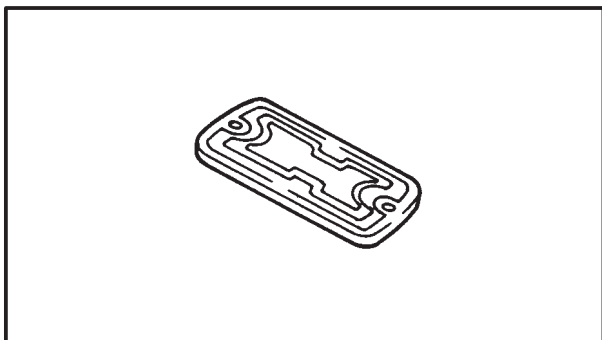
2. Inspect:

- ✱ Master cylinder
Scratches/wear/damage → Replace the master cylinder assembly.



3. Inspect:

- ✱ Diaphragm
Wear/damage → Replace.



YP*****

MASTER CYLINDER ASSEMBLY

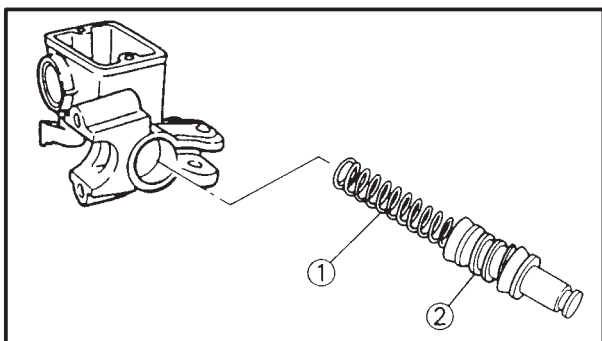
⚠ WARNING

- ✱ All internal brake components should be cleaned and lubricated with new brake fluid only before installation.



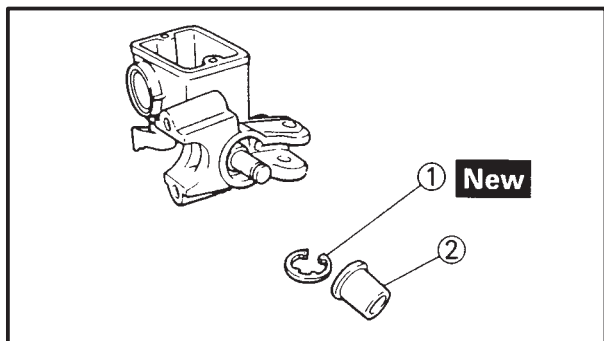
**Recommended brake fluid:
DOT #4 or DOT #3**

- ✱ Replace the piston seals and dust seals whenever a master cylinder is disassembled.



1. Install:

- ✱ Spring ①
Install the spring with its smaller diameter to the master cylinder piston.
- ✱ Master cylinder kit ②

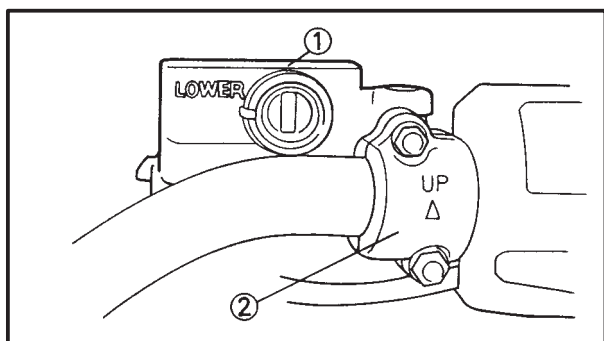


2. Install:

✱Circlip ① **New**

Install the circlip securely into the master cylinder groove.

✱Rubber boot ②



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MASTER CYLINDER INSTALLATION

1. Install:

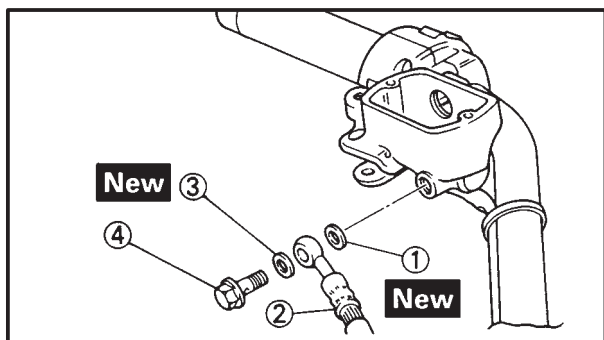
✱Master cylinder ①

✱Master cylinder bracket ②

9 Nm (0.9 m·kg)

CAUTION:

Install the master cylinder bracket ② with the “UP” mark facing upward.



2. Install:

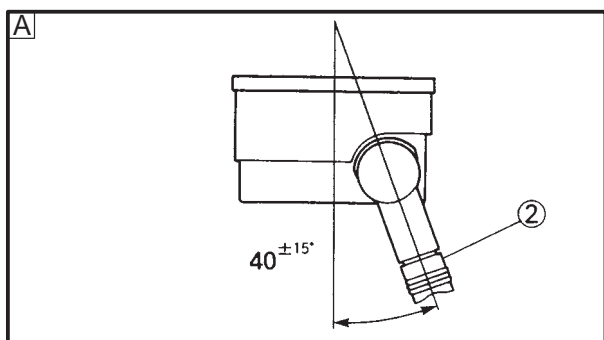
✱Plain washer ① **New**

✱Brake hose ②

✱Plain washer ③ **New**

✱Union bolt ④

30 Nm (3.0 m·kg)



NOTE:

Install the brake hose as shown.

3. Fill:

✱Reservoir tank



Recommended brake fluid:
DOT #4 or DOT #3

CAUTION:

Brake fluid may damage painted surfaces or plastic parts. Always clean up spilled brake fluid immediately.

**⚠ WARNING**

- ✘ **Use only designated quality brake fluid:**
Otherwise, the rubber seals may deteriorate, causing leakage and poor brake performance.
- ✘ **Refill with the same type of brake fluid:** mixing fluids may result in a harmful chemical reaction and lead to poor performance.
- ✘ **Be careful that water does not enter the system:** significantly lower the boiling point of the fluid may result in vapor lock.

4. Air bleed:

- ✘ **Brake system**

Refer to "AIR BLEEDING" section in CHAPTER 3.

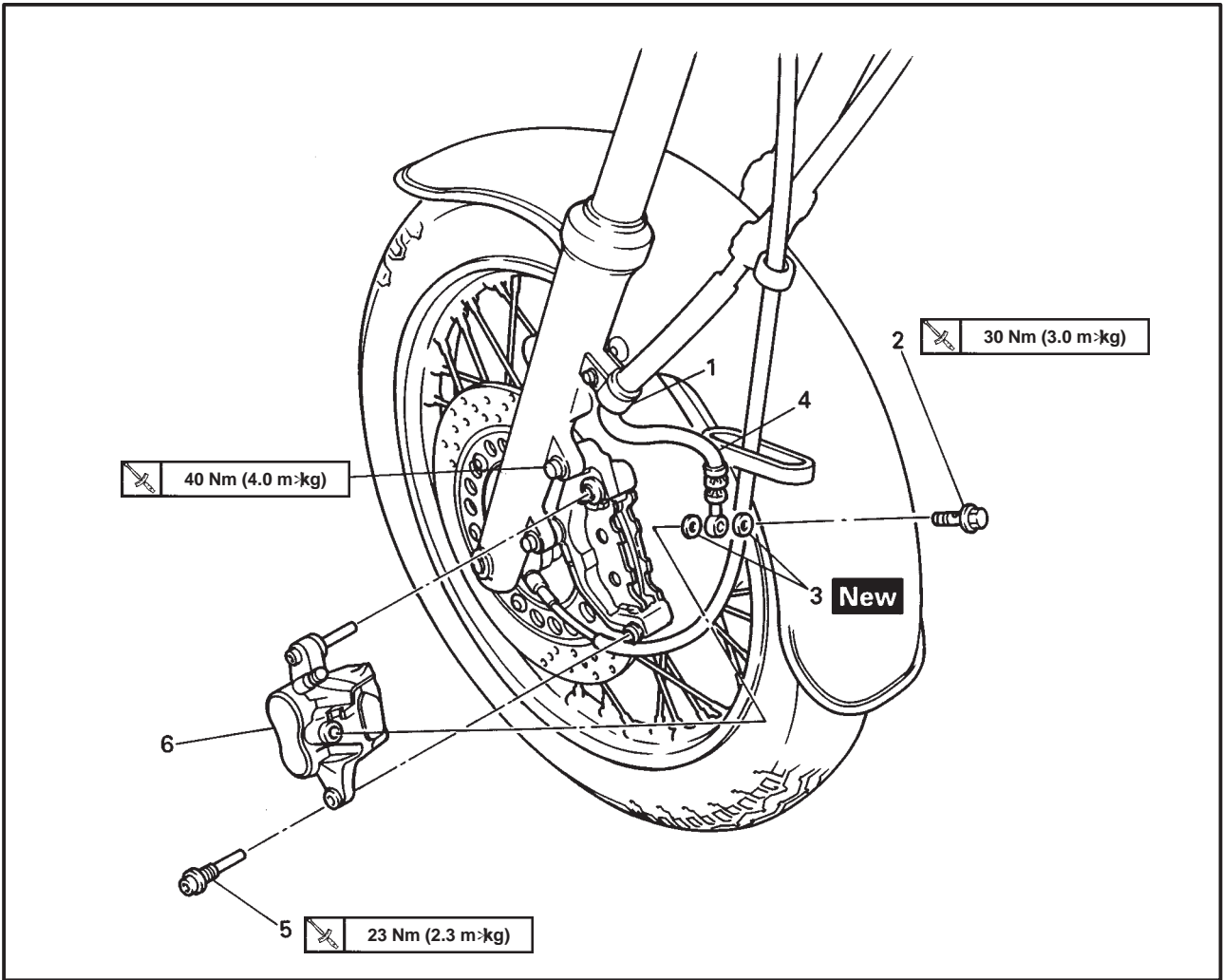
5. Inspect:

- ✘ **Brake fluid level**

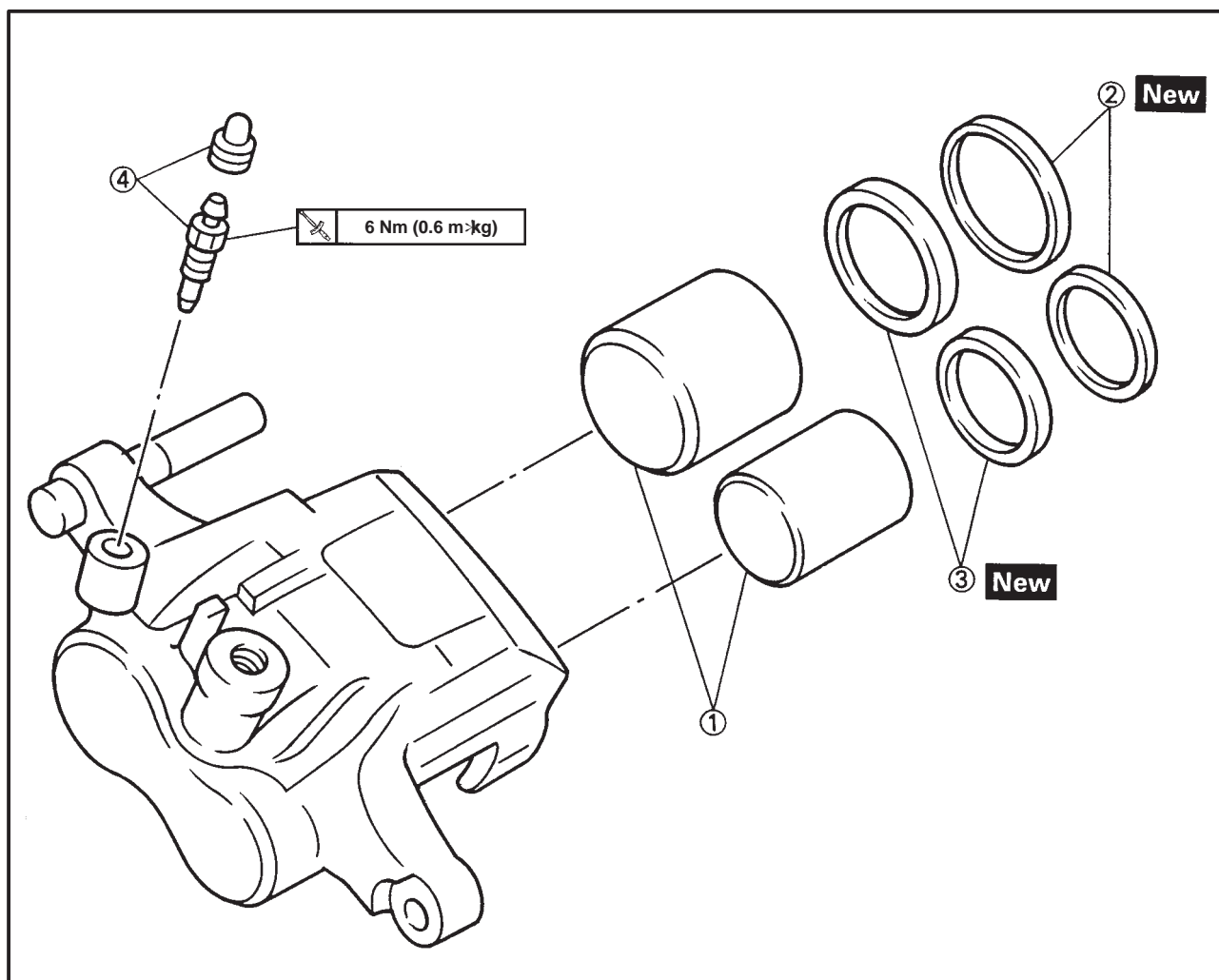
Brake fluid level is under the "LOWER" level line → Fill up.

Refer to "BRAKE FLUID INSPECTION" section in CHAPTER 3.

CALIPER



Order	Job name/Part name	Q'ty	Remarks
	Caliper removal		Remove the parts in order.
1	Drain teh brake fluid	1	Refer to "CALIPER INSTALLATION" section.
2	Brake hose holder	1	
3	Union bolt	1	
4	Plain washer	1	
5	Brake hose	1	
6	Caliper support bolt	1	
	Caliper assembly	1	Reverse the removal procedure for installation



Order	Job name/Part name	Q'ty	Remarks
	Caliper disassembly		
①	Brake pad	2	Disassemble the parts i order. Refer to "BRAKE PAD" section.
②	Caliper piston	2	
③	Dust seal	2	
④	Piston seal	2	Refer to "BRAKE CALIPER DISASSEMBLY/ASSEMBLY" section.
	Bleed screw/Cap	1	
			Reverse the disassembly procedure for reassembly.

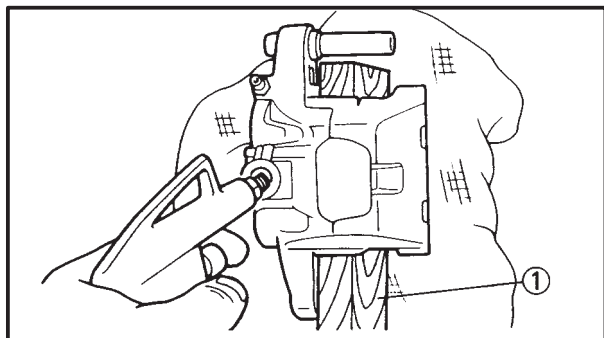


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BRAKE CALIPER DISASSEMBLY

NOTE:

Before disassembling either brake caliper, drain the brake fluid from the brake hose, master cylinder, brake caliper and reservoir tank.



1. Remove:

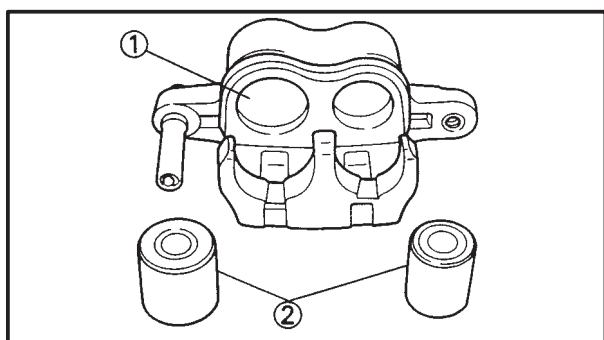
- ✧ Brake caliper pistons
- ✧ Caliper piston seals/dust seals

Removal steps:

- ✧ Use a piece of wood ① to secure the smaller side caliper pistons.
- ✧ To force out the bigger side caliper pistons from the brake caliper body blow compressed air into the hose joint opening ②.
- ✧ Remove the caliper piston seals and reinstall the bigger side caliper pistons.
- ✧ Repeat the previous steps to force out the smaller side caliper pistons from the brake caliper body.

⚠ WARNING

Never try to pry out the caliper piston.



YP*****

CALIPER INSPECTION

1. Inspect:

- ✧ Caliper cylinder ①
 - ✧ Caliper piston ②
- Scratches, wear → Replace caliper assembly.

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BRAKE CALIPER ASSEMBLY

⚠ WARNING

- ✧ All internal brake components should be cleaned and lubricated with new brake fluid only before installation.

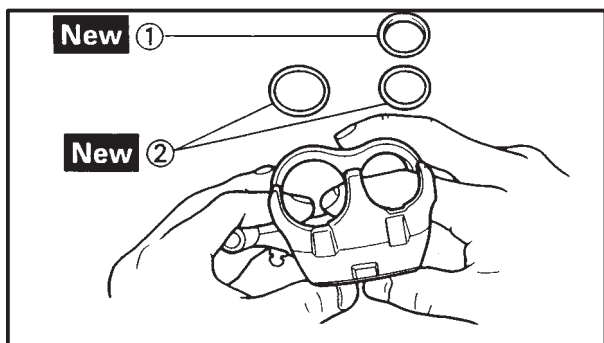


Recommended brake fluid:
DOT #4 or DOT #3

- ✧ Replace the caliper piston seals whenever a brake caliper is disassembled.

FRONT BRAKE

CHAS

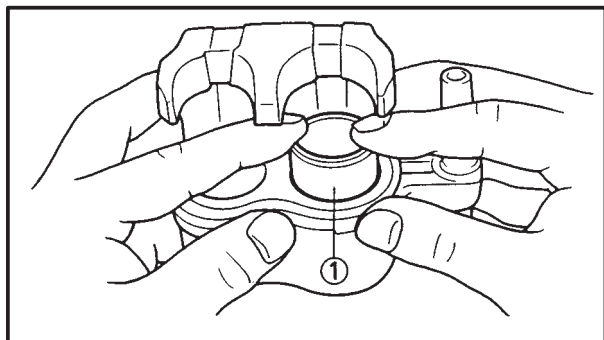


1. Install:

- *Piston seals ① **New**
- *Dust seal ② **New**

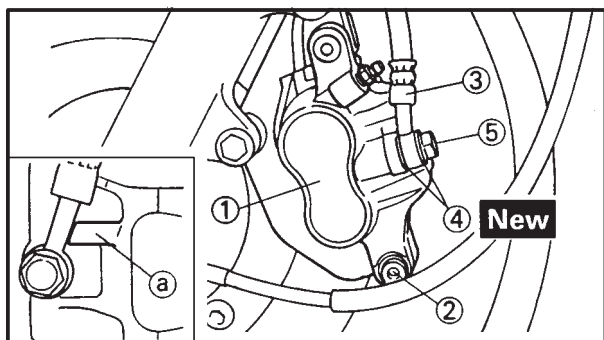
⚠ WARNING

Always use new caliper piston seals.



2. Install:

- *Caliper piston ①
- Apply brake fluid to the outer surface and install.



YP*****

CALIPER INSTALLATION

1. Install:

- *Caliper ① 40 Nm (4.0 m·kg)
- *Caliper support bolt ② 23 Nm (2.3 m·kg)
- *Brake hose ③
- *Plain washer ④ **New**
- *Union bolt ⑤ 30 Nm (3.0 m·kg)

CAUTION:

When installing the brake hose to the caliper, lightly touch the brake hose with the stopper ① on the caliper.

2. Fill:

- *Reservoir tank

Recommended brake fluid:
DOT #4 or DOT #3

CAUTION:

Brake fluid may damage painted surfaces or plastic parts. Always clean up spilled brake fluid immediately.



⚠ WARNING

- ✘ **Use only the designated quality brake fluid: other brake fluids may deteriorate the rubber seals, causing leakage and poor brake performance.**
 - ✘ **Refill with the same type of brake fluid: mixing brake fluids may result in a harmful chemical reaction and lead to poor brake performance.**
 - ✘ **Be careful that water does not enter the master cylinder when refilling. Water will significantly lower the boiling point of the brake fluid and may result in vapor lock.**
-

3. Air bleed:

- ✘ **Brake system**

Refer to “AIR BLEEDING (HYDRAULIC BRAKE SYSTEM)” in CHAPTER 3.

4. Inspect:

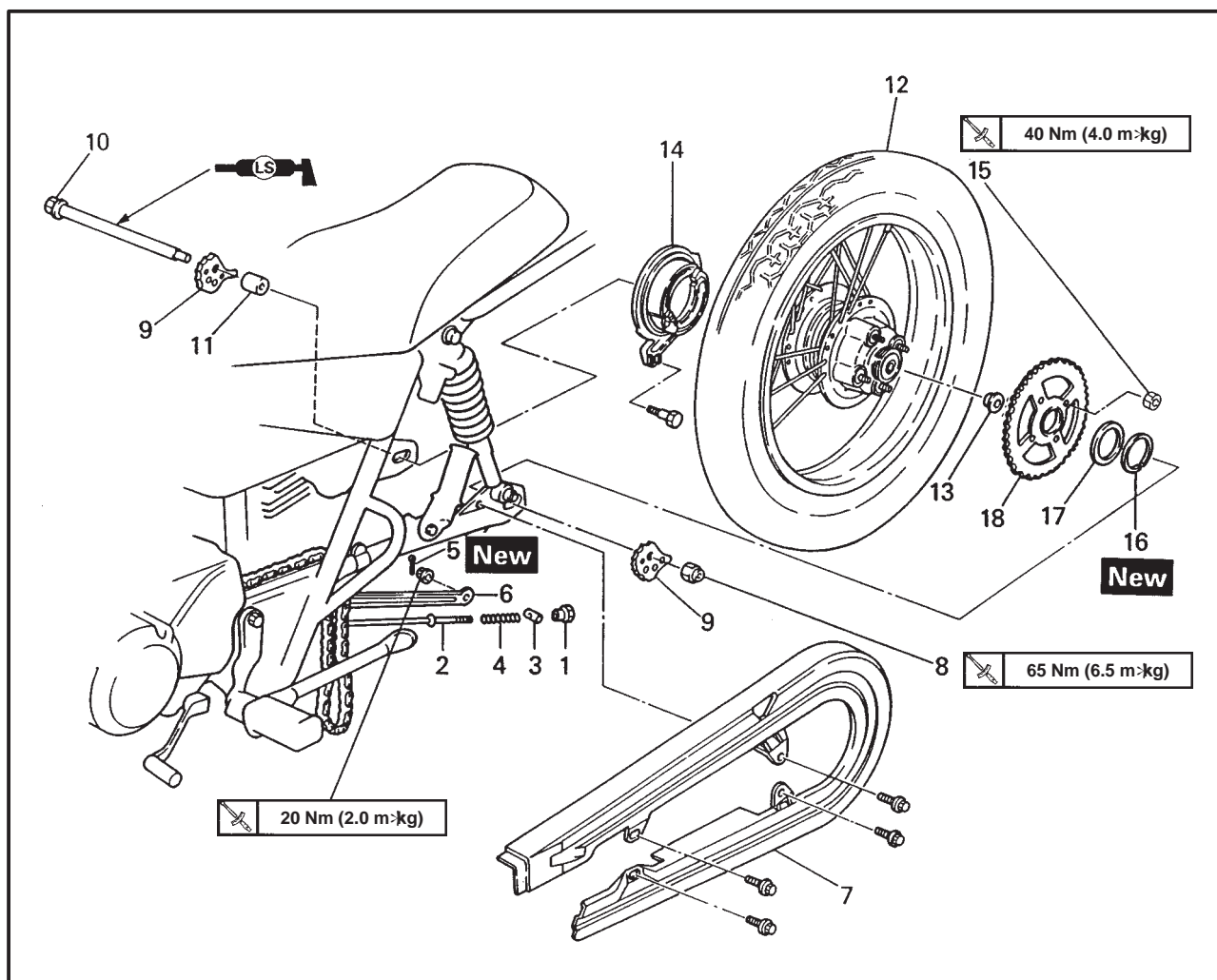
- ✘ **Brake fluid level**

Brake fluid level is under the “LOWER” level line → Fill up.

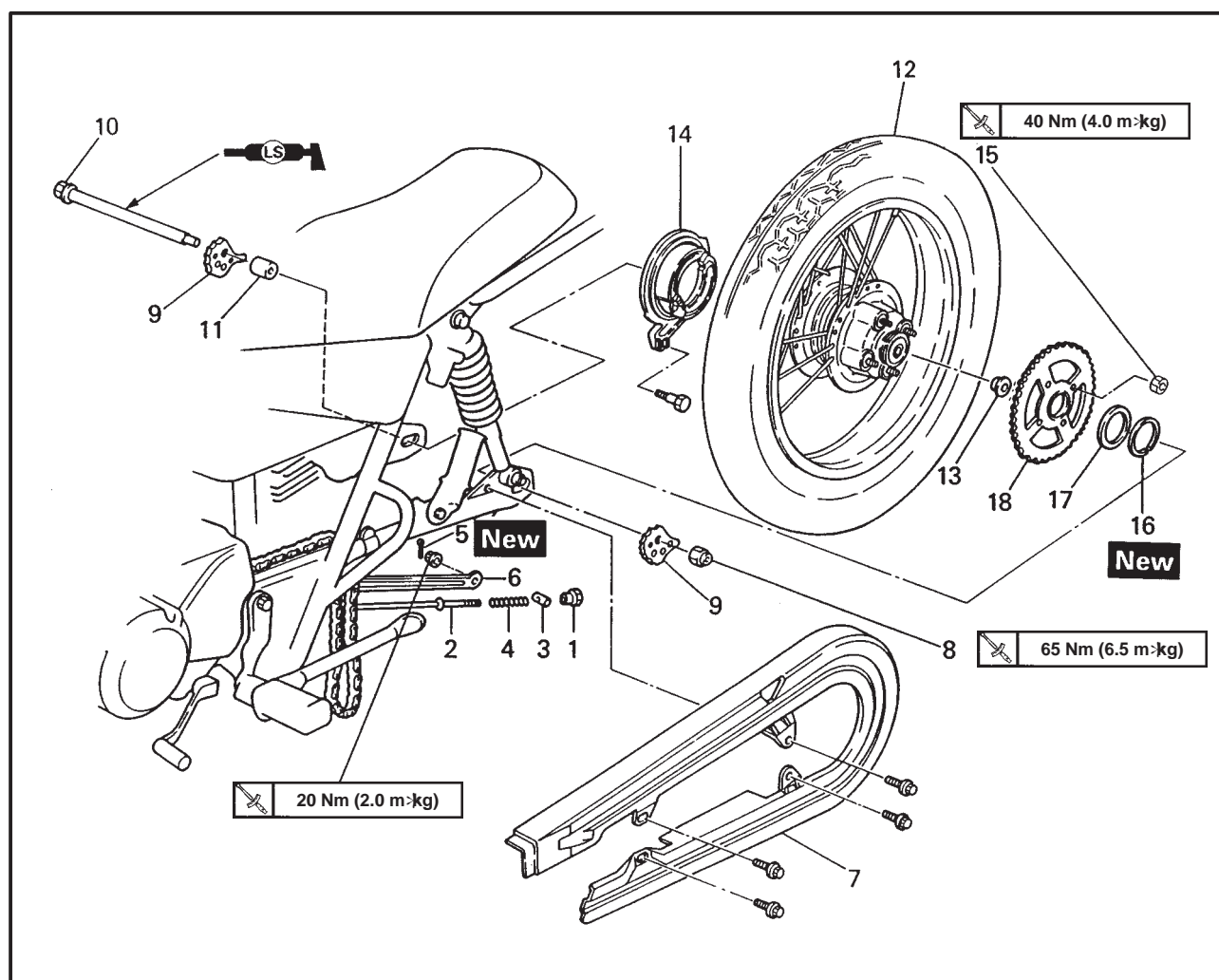
Refer to “BRAKE FLUID LEVEL INSPECTION” in CHAPTER 3.

REAR WHEEL, REAR BRAKE AND DRIVE CHAIN

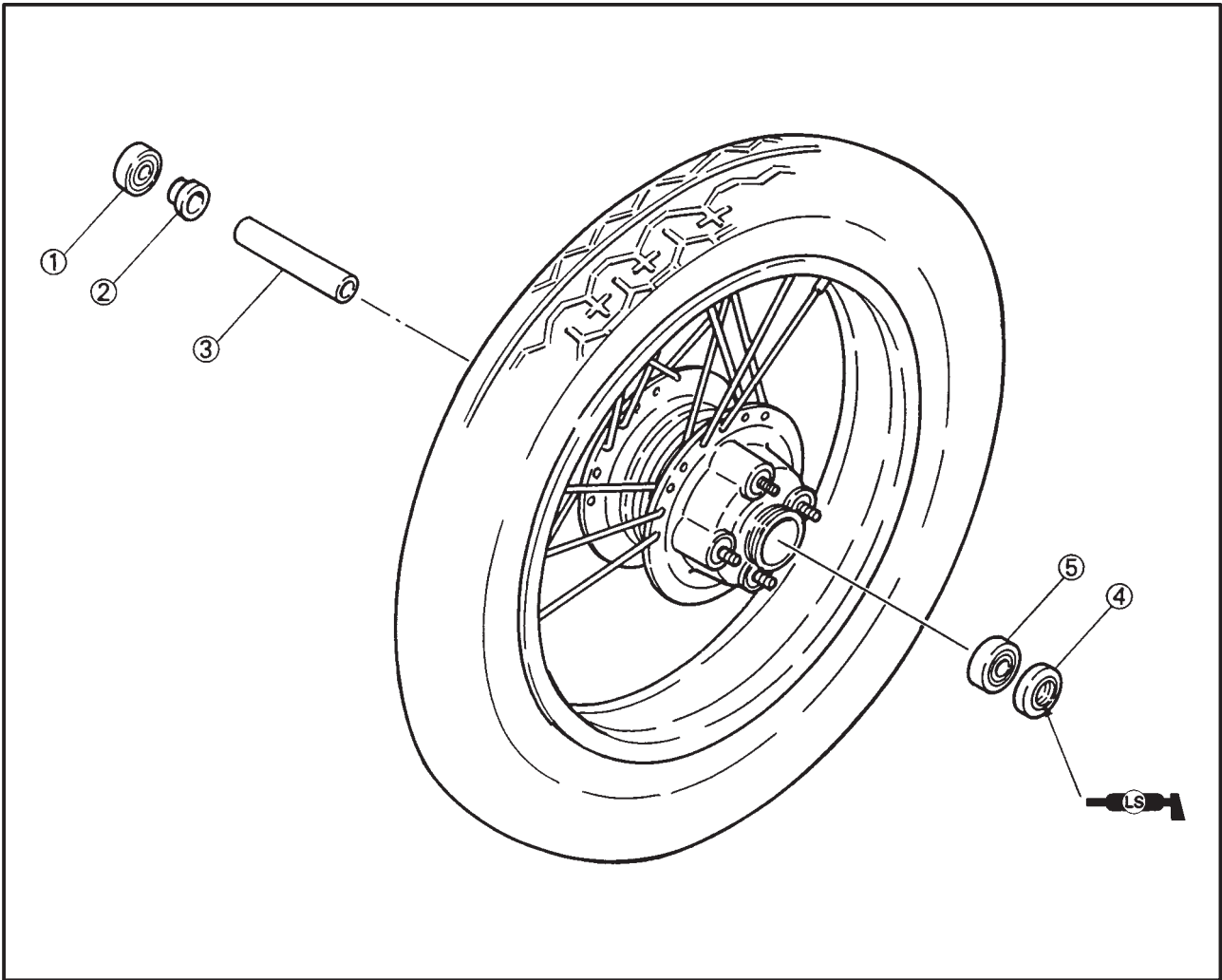
REAR WHEEL AND REAR BRAKE



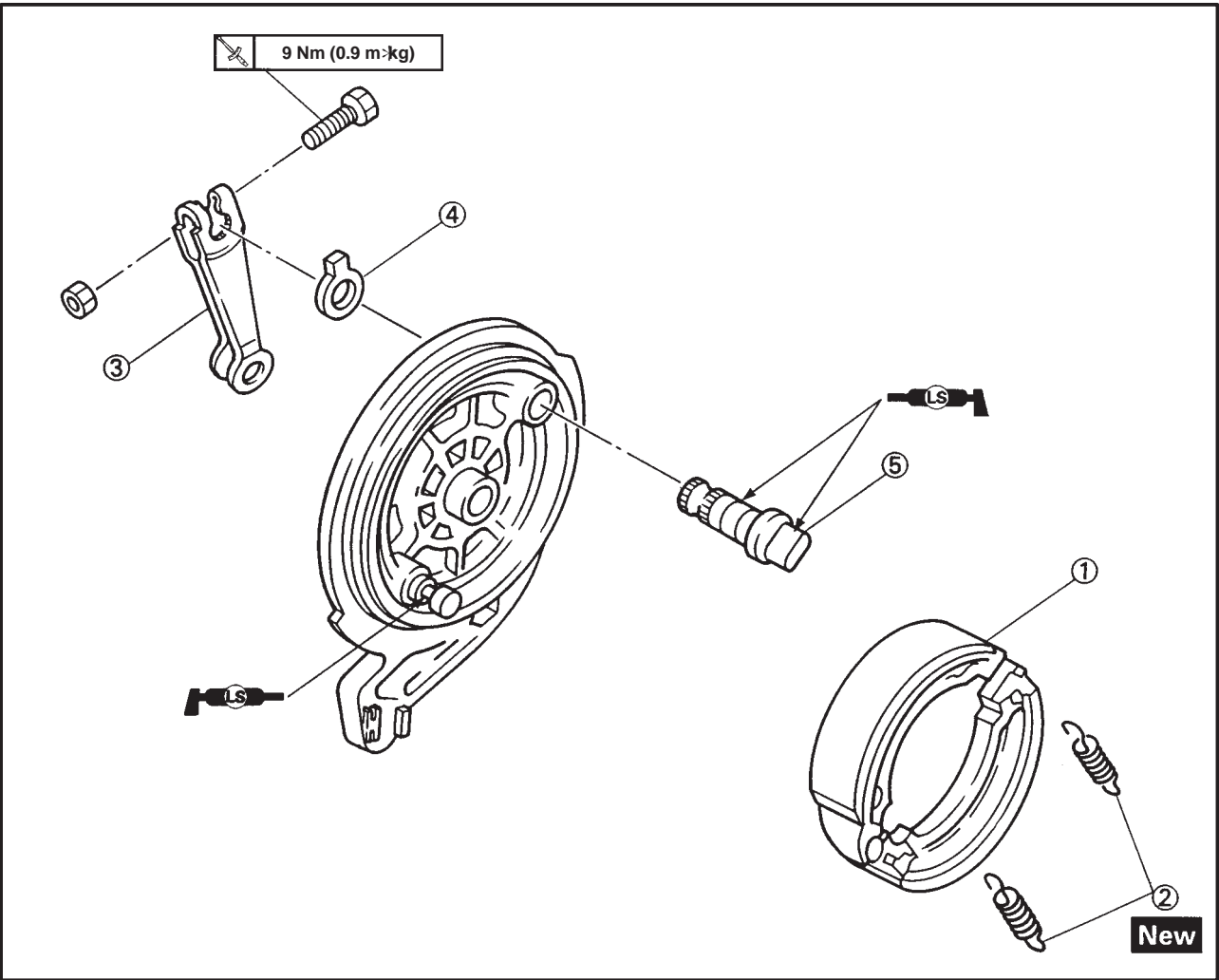
Order	Job name/Part name	Q'ty	Remarks
	Rear wheel and rear brake removal		Remove the parts in order.
1	Adjuster	1	
2	Brake rod	1	
3	Pin	1	
4	Compression spring	1	
5	Cotter pin	1	
6	Tension bar	1	
7	Chain case	1	NOTE: _____
8	Axle nut	1	Bend the end after installing.
9	Chain puller	2	
10	Wheel axle	1	
11	Collar	1	



Order	Job name/Part name	Q'ty	Remarks
12	Rear wheel assembly	1	Refer to "REAR WHEEL ASSEMBLY" section.
13	Collar	1	
14	Shoe plate	1	
15	Nut (driven sprocket)	4	
16	Circlip	1	
17	Washer	1	
18	Driven sprocket	1	
			Reverse the removal procedure for installation.

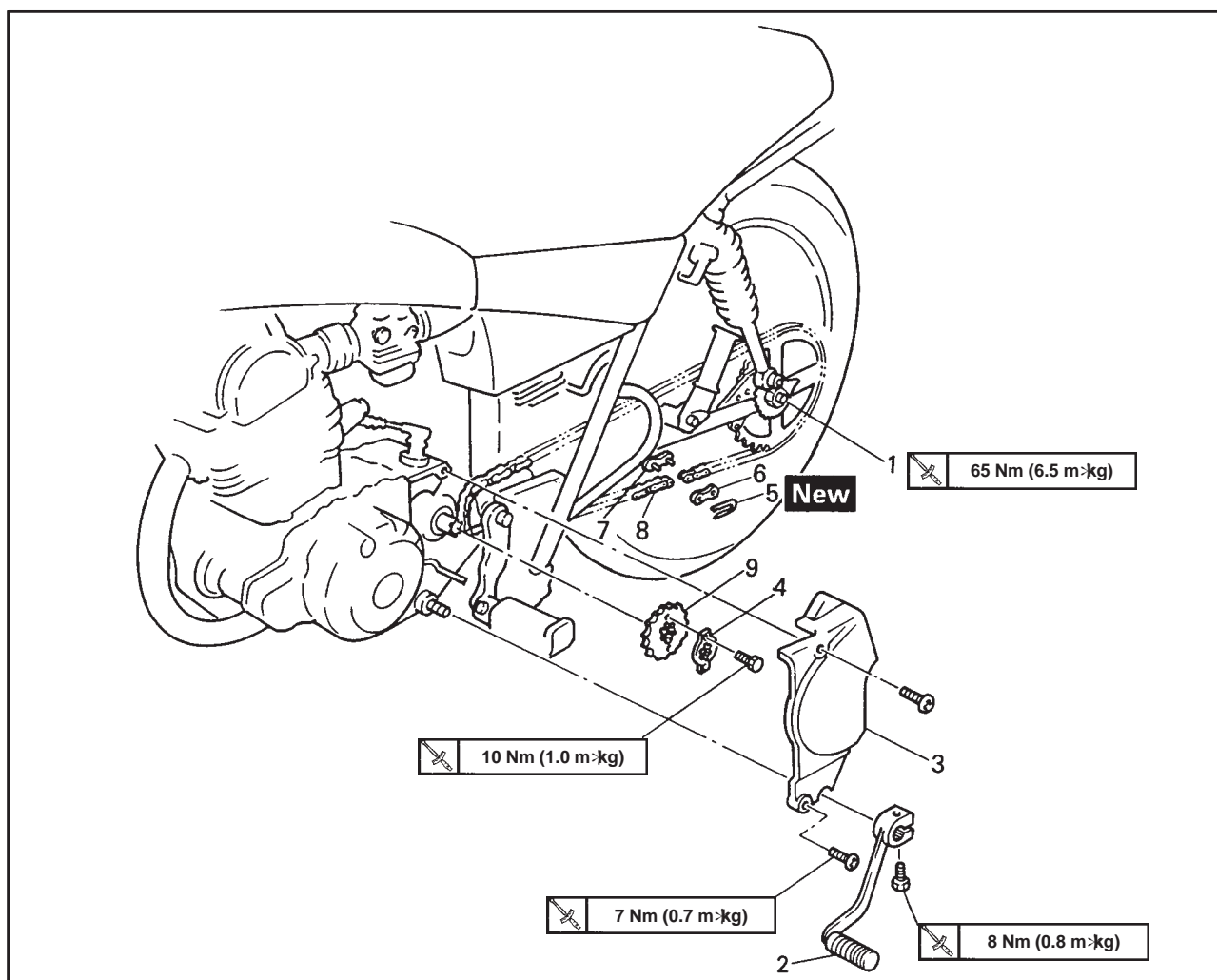


Order	Job name/Part name	Q'ty	Remarks
	Rear wheel disassembly		Disassemble the parts in order.
①	Bearing	1	Refer to "REAR WHEEL DISASSEMBLY/ASSEMBLY" section.
②	Collar	1	
③	Spacer	1	
④	Oil seal	1	
⑤	Bearing	1	
			Reverse the disassembly procedure for reassembly.

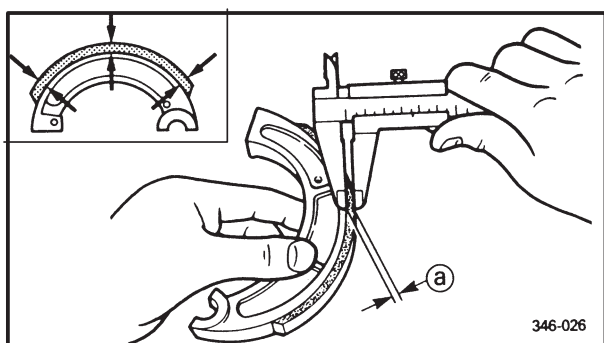
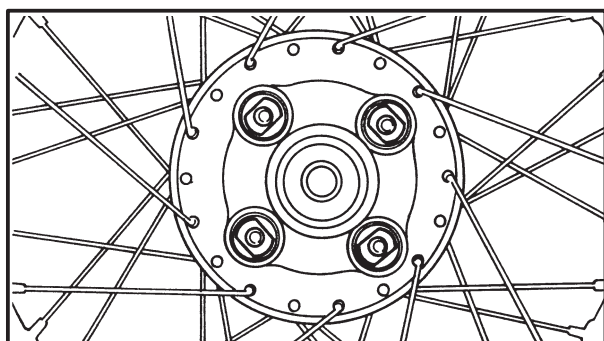
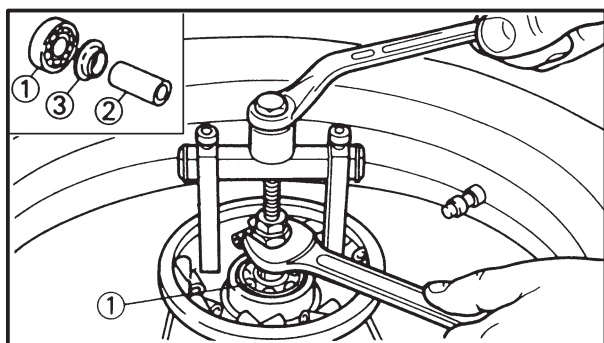


Order	Job name/Part name	Q'ty	Remarks
	Brake shoe plate disassembly		Disassemble the parts in order.
①	Brake shoe kit	2	Refer to "BRAKE SHOE PLATE ASSEMBLY" section.
②	Tension springs	2	
③	Cam lever	1	
④	Indicator plate	1	
⑤	Camshaft	1	Reverse the disassembly procedure for reassembly.

DRIVE CHAIN



Order	Job name/Part name	Q'ty	Remarks
	Drive chain removal		
	Chain case		Remove the parts in order. Refer to "REAR WHEEL, REAR BRAKE AND DRIVE CHAIN" section.
1	Axle nut	1	NOTE: Loosen the axle nut and slacken the drive chain.
2	Shift pedal	1	
3	Sprocket cover	1	
4	Sprocket holder	1	
5	Clip	1	
6	Plate	1	Refer to "DRIVE CHAIN INSTALLATION" section.
7	Chain joint	1	
8	Drive chain	1	
9	Drive sprocket	1	Reverse the removal procedure for installation.



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REAR WHEEL DISASSEMBLY

1. Remove:

- ✳Bearing ①
- ✳Spacer ②
- ✳Collar ③

Refer to "FRONT WHEEL".

SR701020

REAR WHEEL INSPECTION

1. Inspect:

- ✳Rear wheel axle
- ✳Rear wheel
- ✳Rear wheel bearings
- ✳Oil seals

Refer to "FRONT WHEEL".

2. Inspect:

- ✳Clutch hub damper

Wear/damage → Replace.

SR701021

REAR BRAKE INSPECTION

1. Inspect:

- ✳Brake lining surface
- Wear/damage → Replace.

2. Measure:

- ✳Brake lining thickness ①
- Out of specification → Replace.



Brake lining thickness:

Standard:

4 mm

Limit:

2 mm

⚠ WARNING

When inspecting the brake lining, do not spill oil or grease on the brake lining.

3. Inspect:

- ✳Brake drum inner surface
 - ✳Oil
 - ✳Scratches
- Wear/damage → Replace.

4. Measure:

- ✳Brake drum inside diameter ②
- Out of specification → Replace.



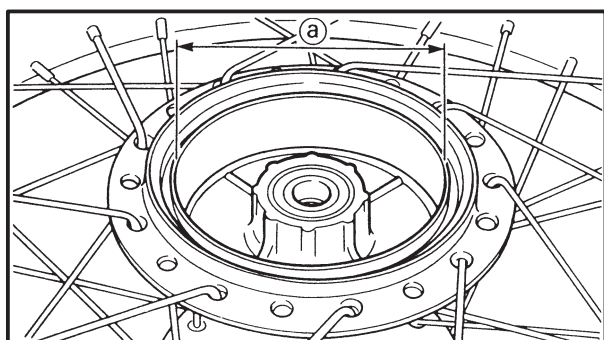
Brake drum inside diameter:

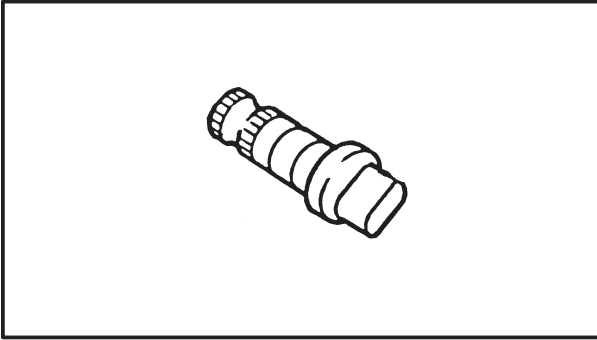
Standard:

110 mm

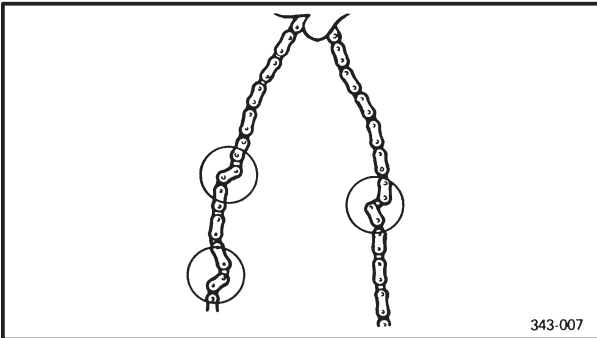
Limit:

111 mm





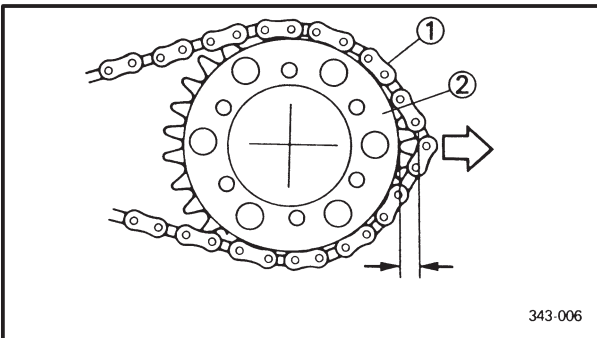
5. Inspect:
✱Cam shaft face



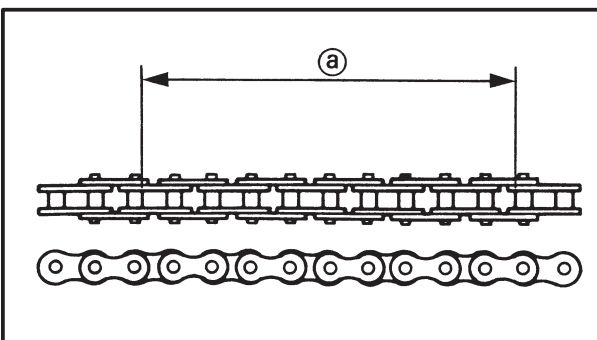
T701020

DRIVE CHAIN INSPECTION

1. Inspect:
✱Drive chain stiffness
Stiffness → Clean and lubricate or replace.



2. Inspect:
✱Drive chain ①
✱Driven sprocket ②
More than 1/2 tooth a wear → Replace the drive chain.
Use new driven sprocket.



3. Measure:
✱10 link length ② (drive chain)
Out of specification → Replace the drive chain.

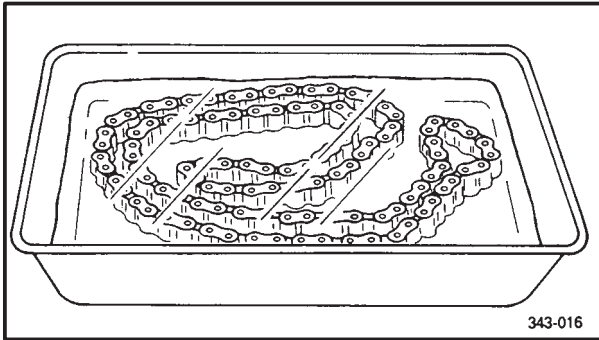


10 link length limit:
122 mm

- NOTE:** _____
✱Tighten the drive chain with a finger before measuring.
✱10 link length is the distance between the inside edge of roller ① and ⑪ as shown.
✱10 link length measurement should be done at two or three different places.

REAR WHEEL, REAR BRAKE AND DRIVE CHAIN

CHAS



4. Clean:

- *Drive chain

Put it in kerosene, and brush off as much dirt as possible. Then remove the drive chain from the kerosene and dry it.



Drive chain lubricant:
Engine oil

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BRAKE SHOE PLATE ASSEMBLY

1. Install:

- *Camshaft ①

- *Indicator plate ②

Installation steps:

- *Align the projection (a) on the indicator plate with the camshaft notch (b) and install.

- *Check the proper position of the brake shoe.

2. Install:

- *Cam lever ①



9 Nm (0.9 m·kg)

NOTE:

- *Align the punch mark (c) on the cam shaft with the mark made on the cam lever (d).

- *Apply lithium soap base grease onto the brake cam shaft and pin.

3. Install:

- *Brake shoes ①

- *Tension springs ② **New**

NOTE:

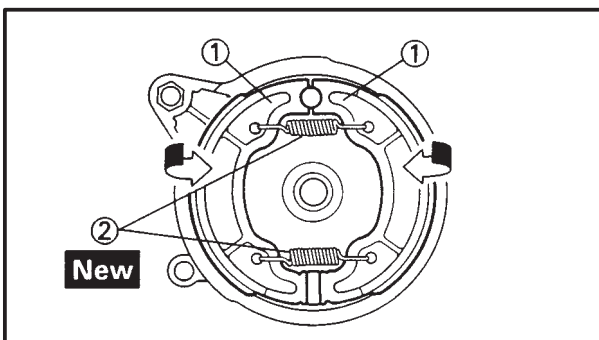
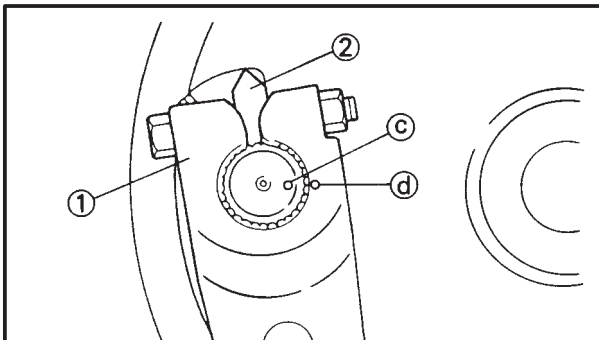
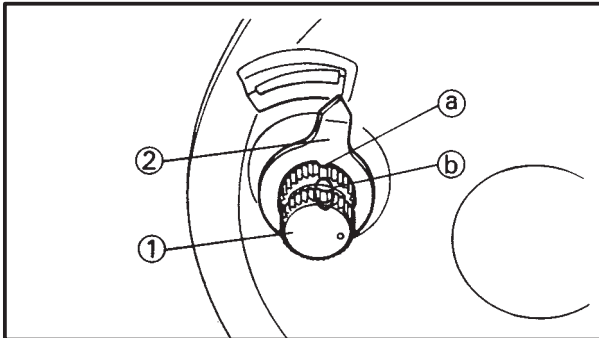
- *When installing the springs and brake shoes, take care not to damage the springs.

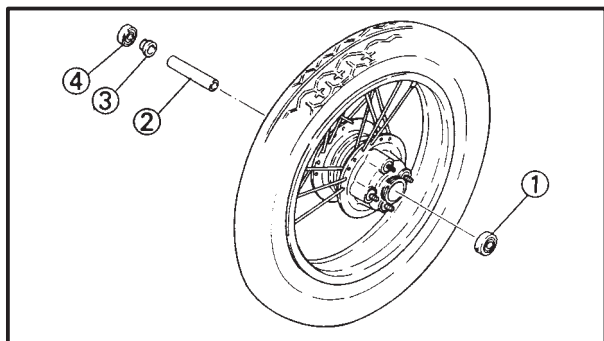
- *Replace the tension spring as a set when replace the brake shoes.



WARNING

After installing the rear brake cam shaft, remove the excess grease.





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REAR WHEEL ASSEMBLY

1. Install:

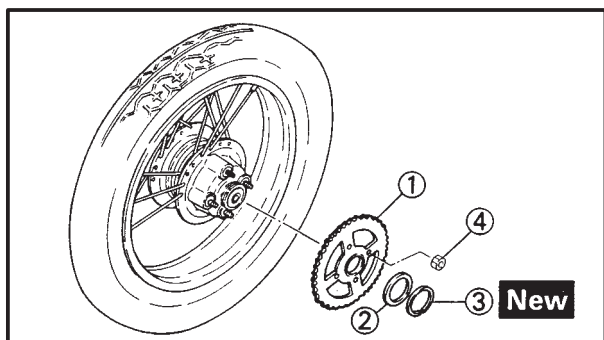
- *Bearing ①
- *Spacer ②
- *Collar ③
- *Bearing ④

NOTE:

- *Apply the lithium soap base grease on the bearing and oil seal lip when installing.
- *Use a socket that matches the outside diameter of the race of the bearing.
- *Always use a new oil seal.
- *Install the oil seal with its manufacturer's marks or numbers facing outward.

CAUTION:

Do not strike the inner race of balls of the bearing. Contact should be made only with the outer race.



2. Install:

- *Driven sprocket ①
- *Washer ②
- *Circlip ③ **New**
- *Nut ④

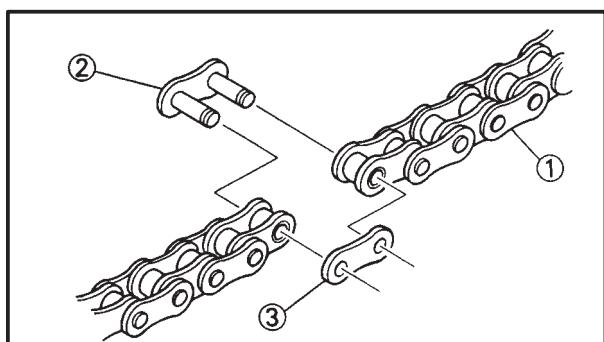
40 Nm (4.0 m·kg)

T*****

DRIVE CHAIN INSTALLATION

1. Install:

- *Drive chain ①
- *Chain joint ②
- *Plate ③

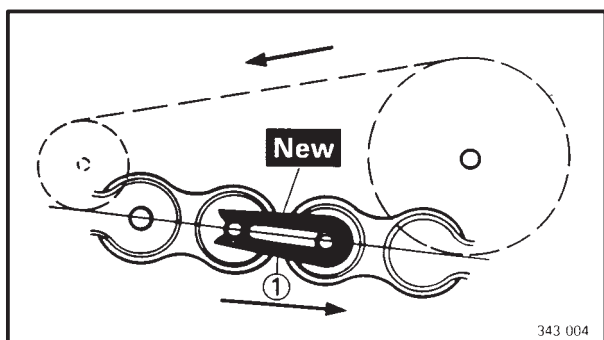


2. Install:

- *Clip ① **New**

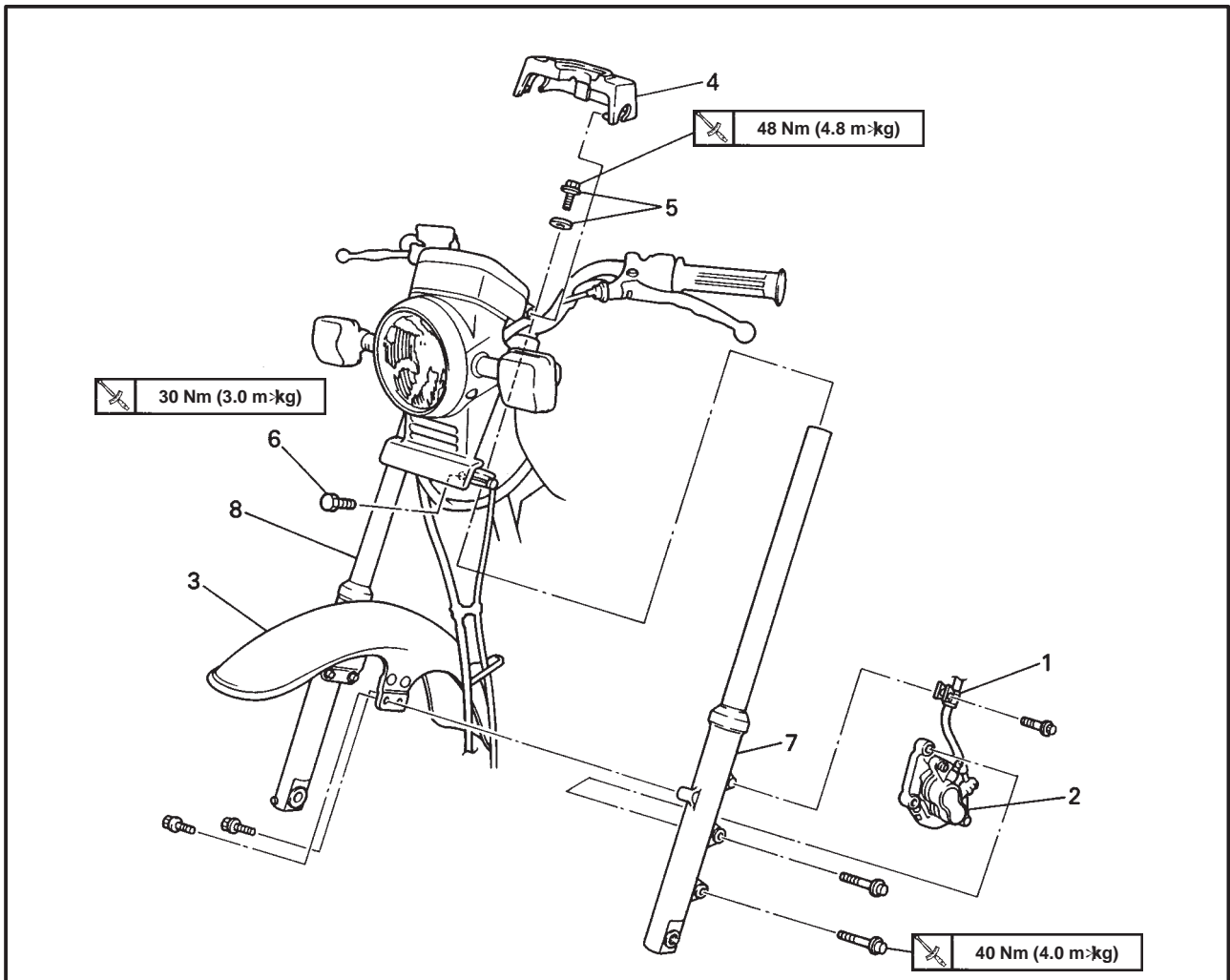
CAUTION:

Be sure to install the chain joint clip to the direction as shown.

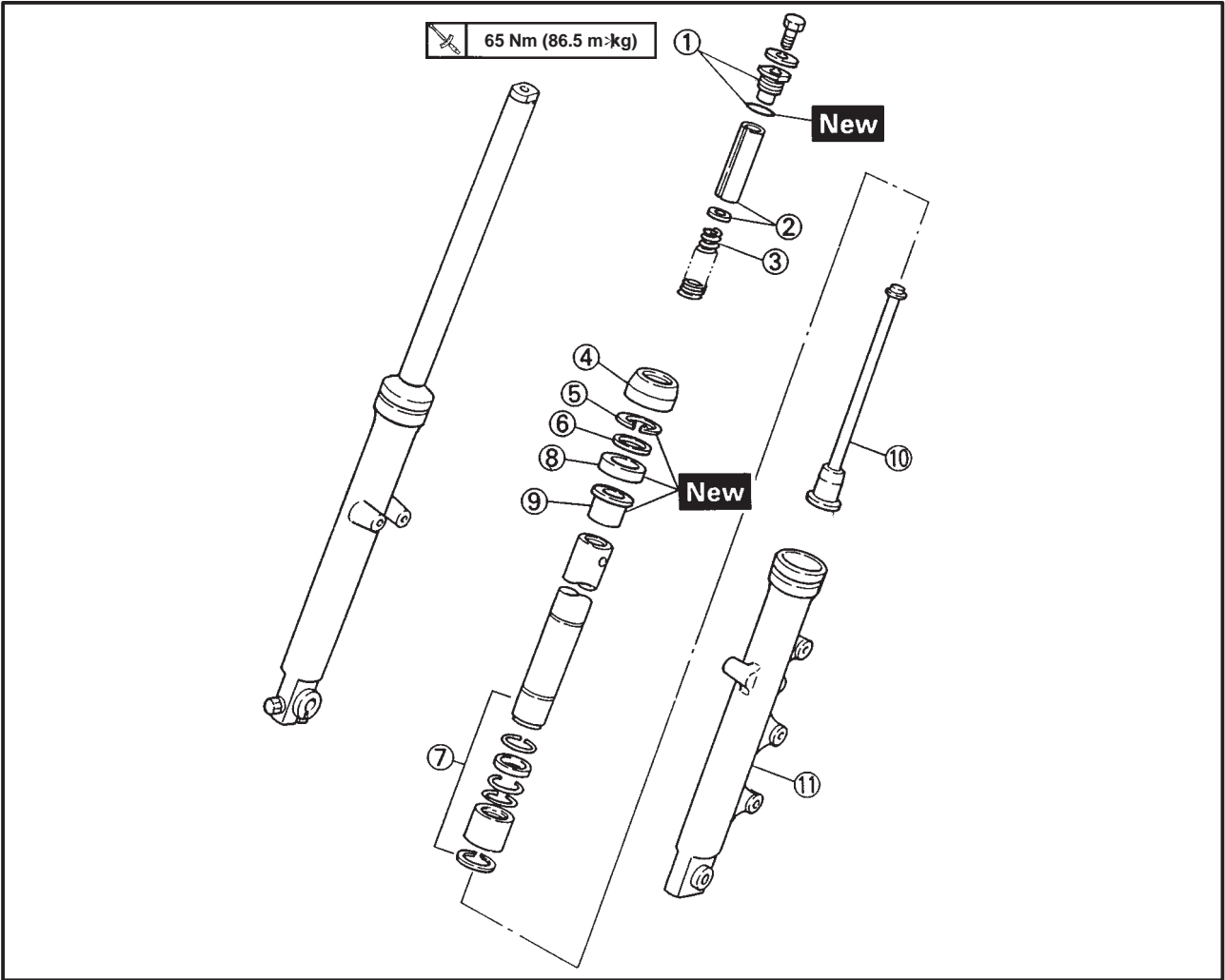


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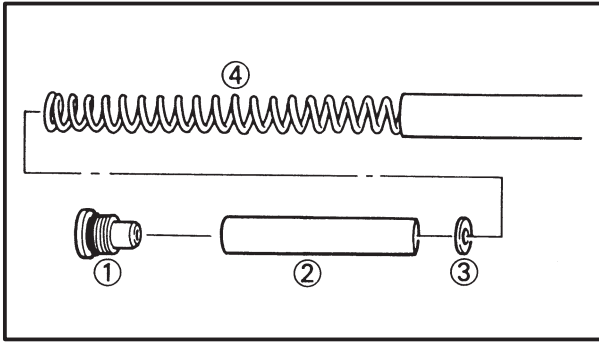
FRONT FORK



Order	Job name/Part name	Q'ty	Remarks
	Front fork removal		
	Front wheel		Remove the parts in order. Refer to "FRONT WHEEL AND BRAKE DISC" section.
1	Brake hose holder	1	
2	Caliper	1	
3	Front fender	1	
4	Cover	1	
5	Bolt/washer	1/1	
6	Bolt (under bracket)	1	Refer to "FRONT FORK INSTALLATION" section. NOTE: _____ Loosen the bolt.
7	Front fork assembly (left)	1	
8	Front fork assembly (right)	1	
			Reverse the removal procedure for installation.



Order	Job name/Part name	Q'ty	Remarks
	Front fork disassembly		Disassemble the parts in order.
①	Cap bolt/O-ring	1/1	NOTE: _____ Drain the fork oil.
②	Collar/washer	1/1	
③	Fork spring	1	
④	Dust cover	1	Refer to "FRONT FORK DISASSEMBLY/ASSEMBLY" section.
⑤	Retaining clip	1	
⑥	Washer (oil seal)	1	
⑦	Inner tube assembly	1	Refer to "FRONT FORK ASSEMBLY" section.
⑧	Oil seal	1	
⑨	Piston metal	1	
⑩	Damper rod	1	Reverse the disassembly procedure for assembly.
⑪	Outer tube	1	

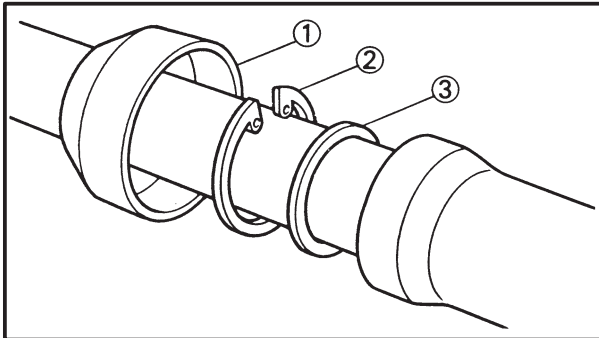


SR*****

FRONT FORK DISASSEMBLY

1. Remove:

- *Cap bolt ①
- *Collar ②
- *Washer ③
- *Fork spring ④

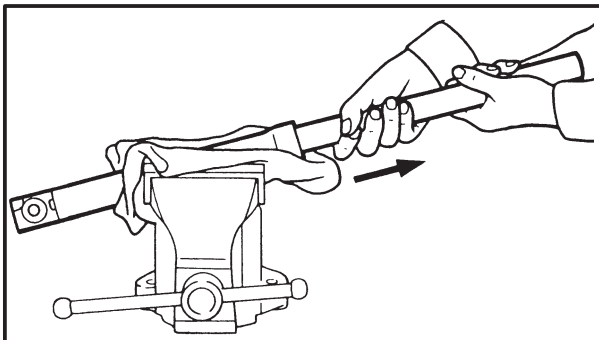


2. Remove:

- *Dust cover ①
- *Retaining clip ②
(using a slotted-head screwdriver)
- *Washer (oil seal) ③

CAUTION:

Take care not to scratch the inner tube.



3. Remove:

- *Inner tube

Removal steps:

- *Hold the fork leg horizontally.
- *Securely clamp the outer tube in a vise with soft jaws.
- *Separate the inner tube from the outer tube by pulling forcefully but carefully the inner tube.

CAUTION:

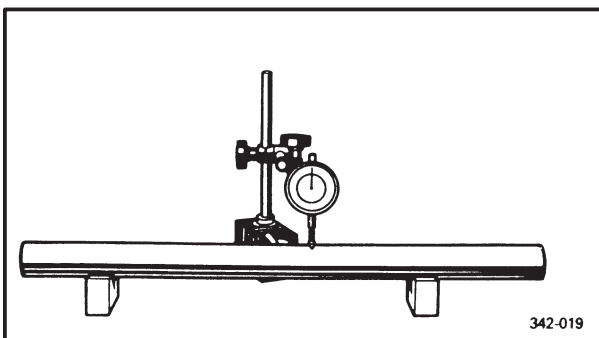
Excessive force will damage the oil seal and/or the metal. Damaged oil seal and metal must be replaced.

YP703030

FRONT FORK INSPECTION

1. Inspect:

- *Inner tube bending



Inner tube bending limit:
0.2 mm

Scratches/bends/damage → Replace.

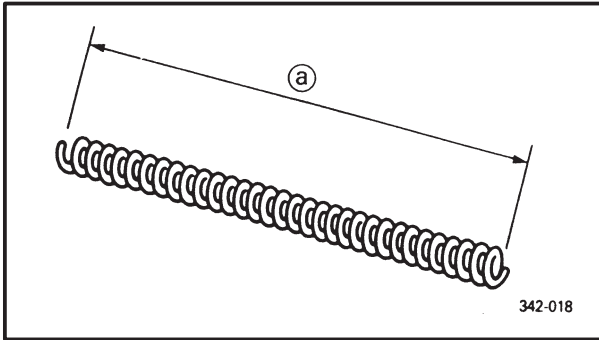


WARNING

Do not attempt to straighten a bent inner tube as this may dangerously weaken the tube.

FRONT FORK

CHAS



2. Measure:

✳ Fork spring ①



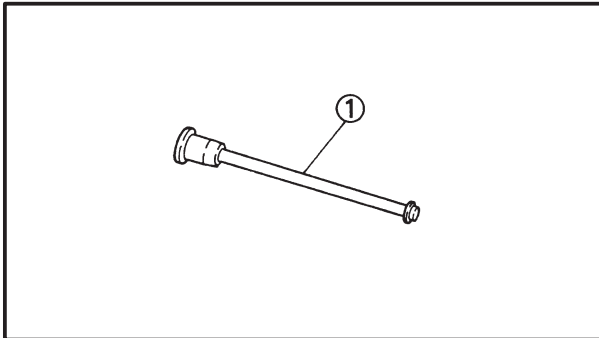
Front fork spring free length:

326.1 mm

<Wear limit>

321 mm

Over the specified limit → Replace.



3. Inspect:

✳ Rod assembly ①

Bends/damage → Replace.

CAUTION:

✳ The front fork has a built-in piston rod and a very sophisticated internal construction which are particularly sensitive to foreign material.

✳ When disassembling and assembling the front fork do not allow any foreign material to enter the oil.

SR*****

FRONT FORK ASSEMBLY

Reverse the "DISASSEMBLY" procedure.

Note the following points.

NOTE:

✳ When assembling the front fork be sure to replace the following parts.

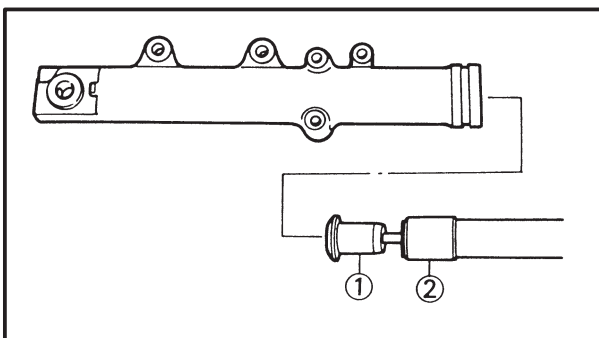
* Piston metal

* Slide metal

* Oil seal

* Dust seal

✳ Before assembling the fork, make sure that all of the components are clean.



1. Install:

✳ Damper rod ①

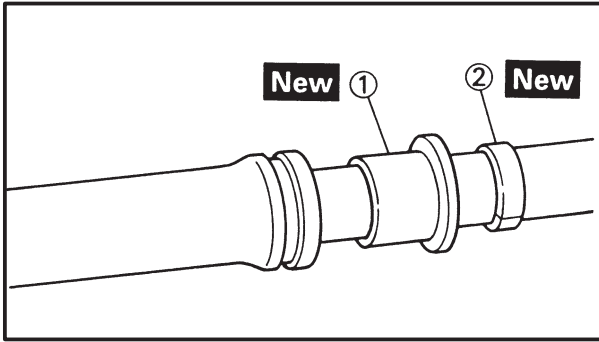
✳ Inner tube ②

NOTE:

Install the damper rod into the inner tube before install to the outer tube.

FRONT FORK

CHAS



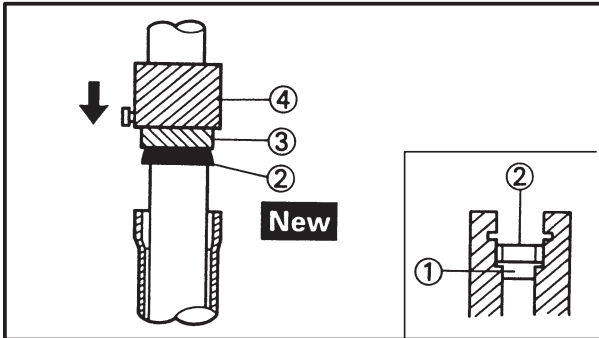
2. Install:

- *Piston metal ① **New**
- *Oil seal ② **New**

Use the fork seal driver weight ③ and the attachment ④.

NOTE:

Before installing the oil seal ②, apply lithium soap base grease onto the oil seal lips.

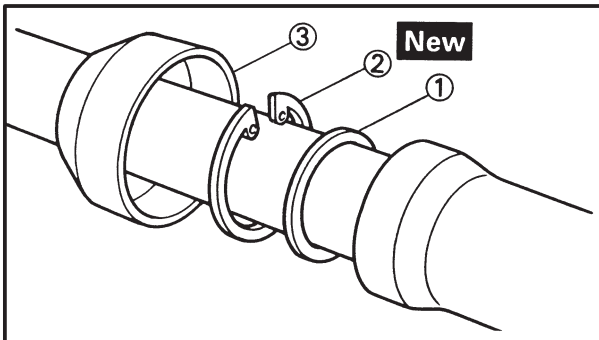


CAUTION:

Make sure that the oil seal numbered side faces upward.



Fork seal driver weight:
90890-01400
Attachment:
90890-01367

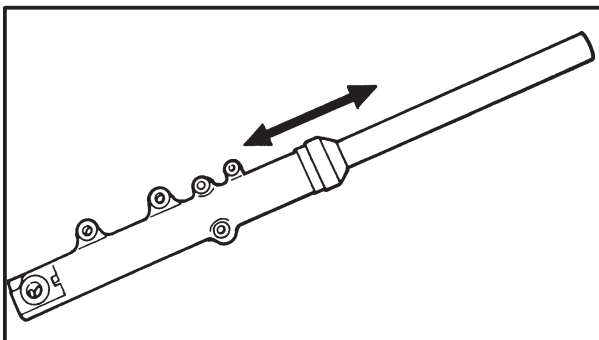


3. Install:

- *Washer (oil seal) ①
- *Retaining clip ② **New**
- *Dust seal ③

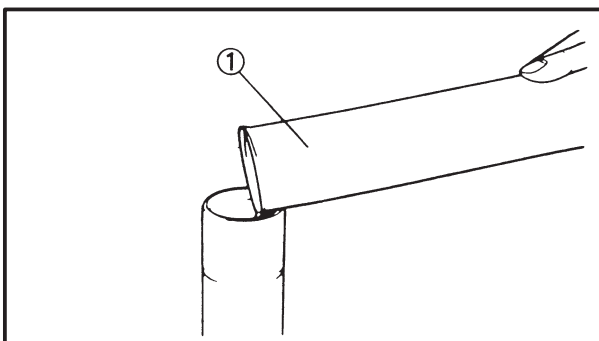
NOTE:

Adjust the retaining clip so that it fits into the outer tube groove.



4. Inspect:

- *Inner tube operation
- Unsmooth operation → Disassembly and re-check.



5. Fill:

- *Fork oil ①

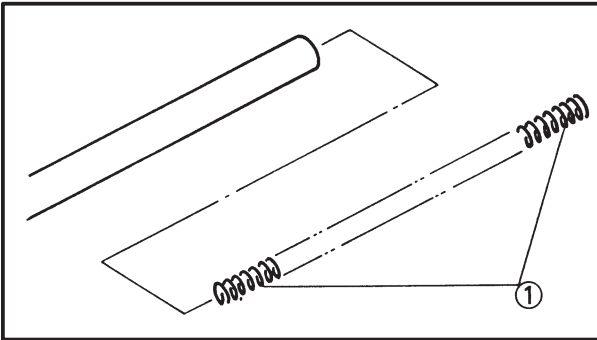
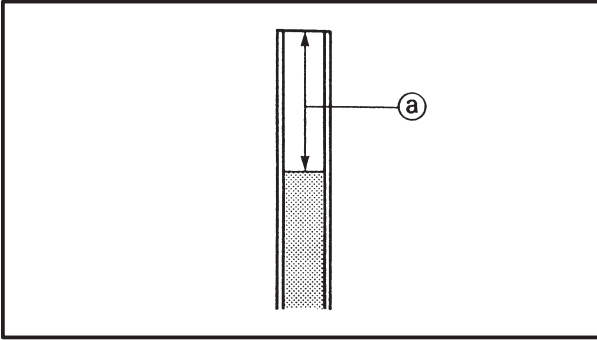


Oil quantity:
0.177 L
Recommended oil:
Fork oil 15WT or equivalent

6. After filling up, slowly pump the fork up and down to distribute the fork oil.

FRONT FORK

CHAS



7. Measure:

✱Oil level (a)

Out of specification → Adjust.



Oil level:

165 mm

**(from the top of the inner tube
fully compressed and without
the fork spring)**

NOTE:

Hold the fork in an upright position.

8. Install:

✱Front fork spring (1)

NOTE:

✱Install the fork spring with its smaller pitch up-ward.

✱Before installing the cap bolt, apply grease to the O-ring.

✱Temporarily tighten the cap bolt.

9. Install:

✱Plate washer

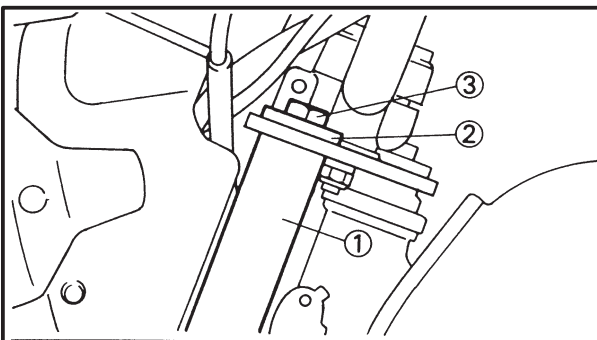
✱Spacer

✱O-ring **New**

✱Cap bolt



65 Nm (6.5 m·kg)



EB70307250

FRONT FORK INSTALLATION

Reverse the "REMOVAL" procedure.

Note the following points.

1. Install:

✱Front fork (1)

✱Plate washer (2)

Temporary tighten the pinch bolts.

NOTE:

Pull up the inner tube until its end flushes the top of the under bracket, then temporarily tighten the bolt (under bracket lower).

2. Tighten:

✱Cap bolts (3)



48 Nm (4.8 m·kg)

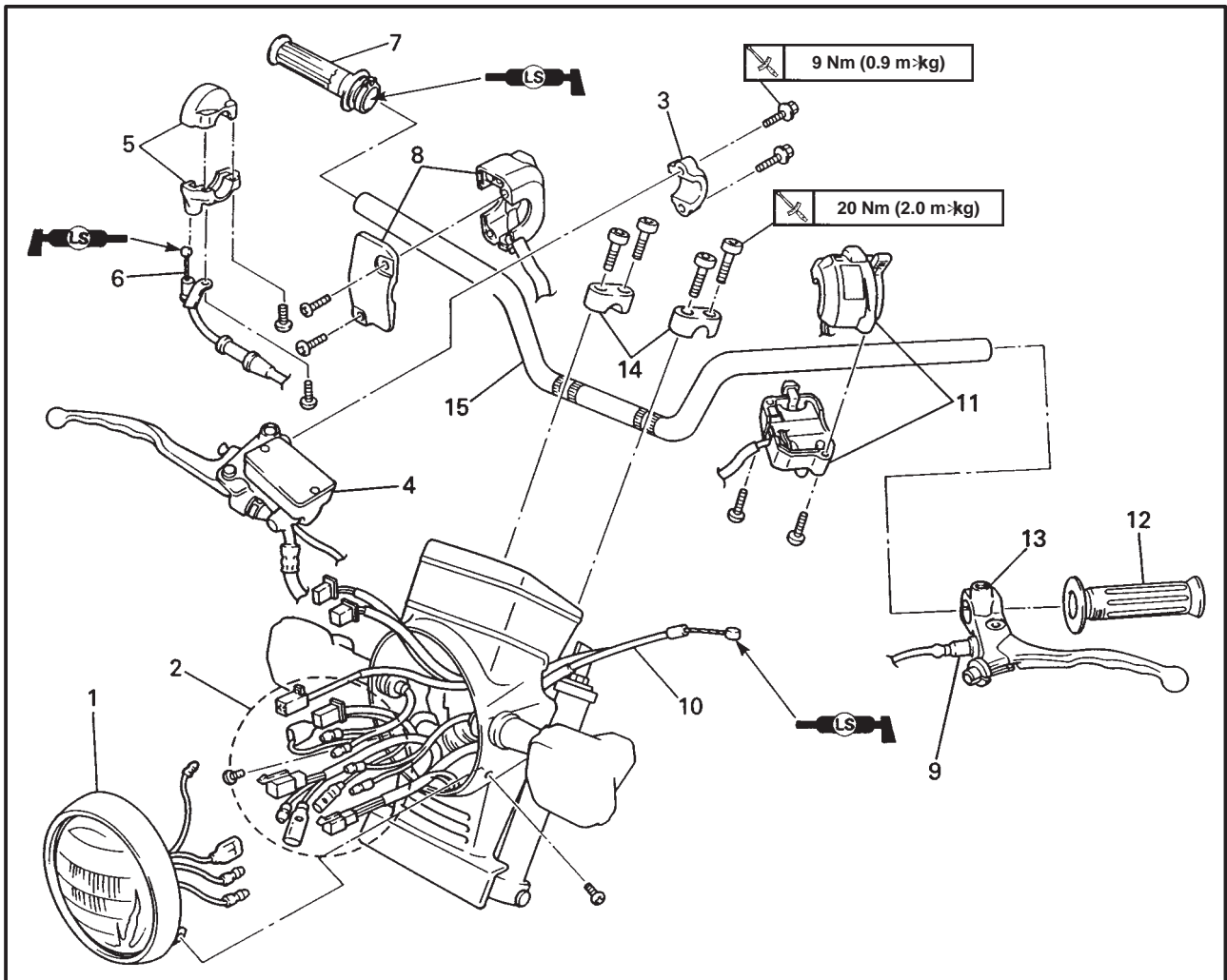
✱Pinch bolts (under bracket)



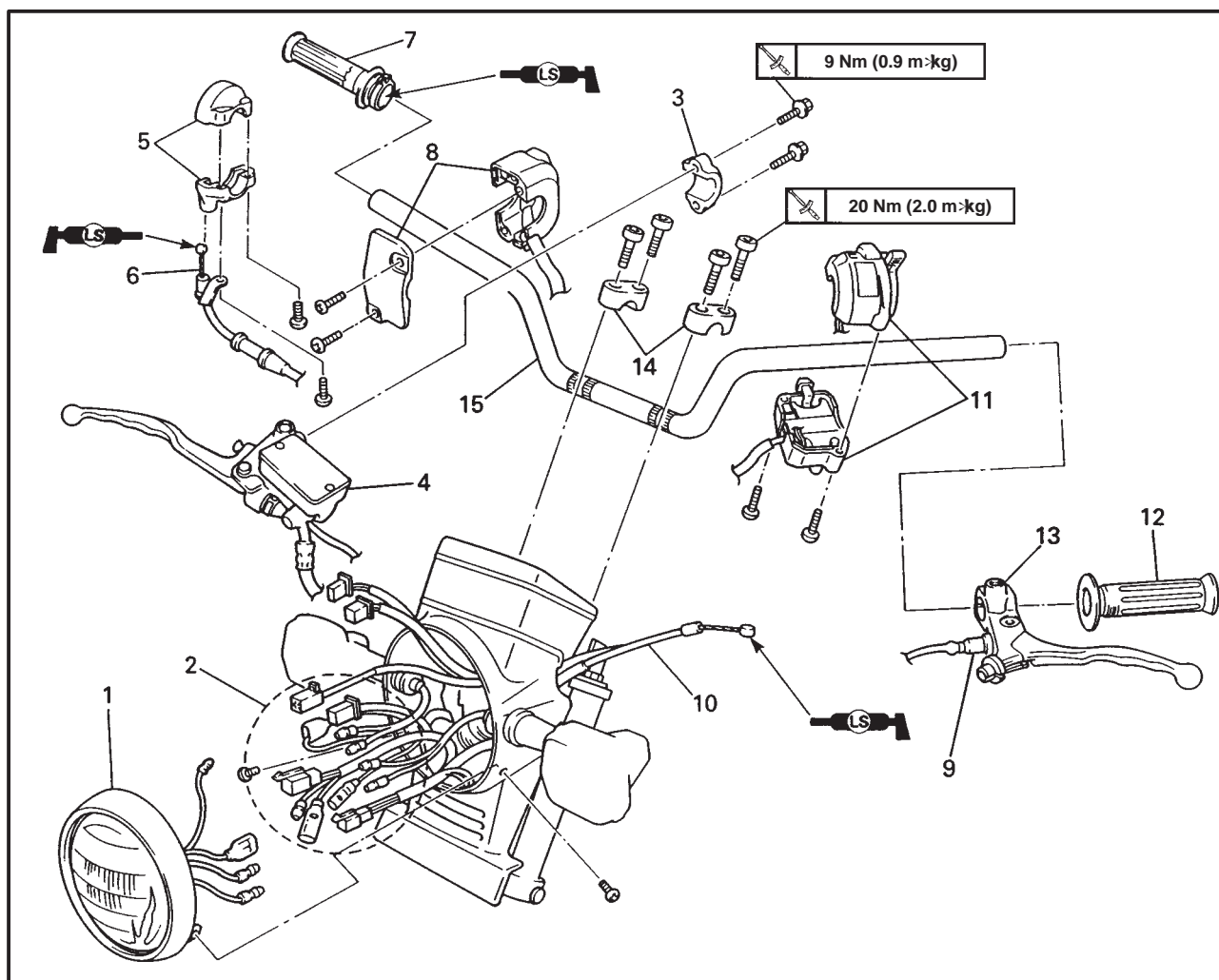
30 Nm (3.0 m·kg)



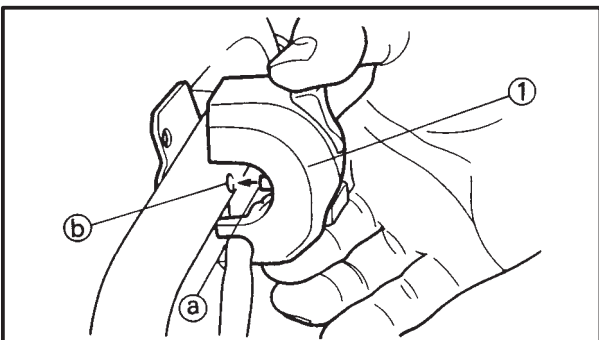
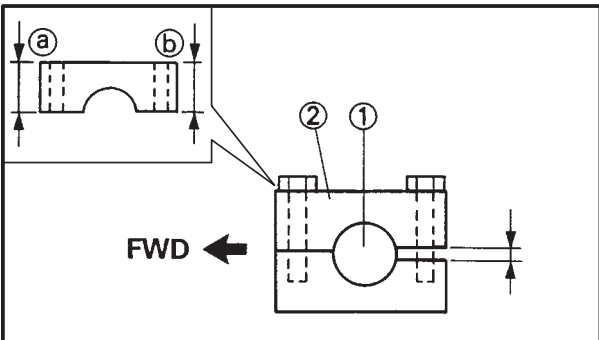
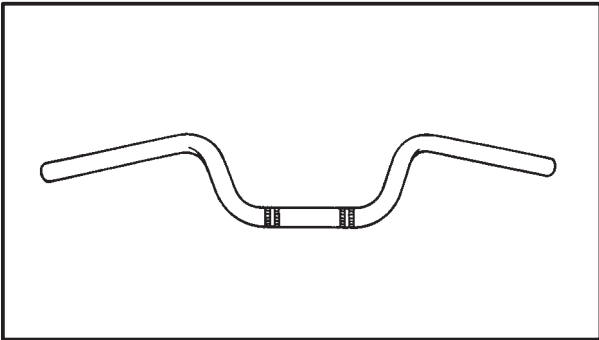
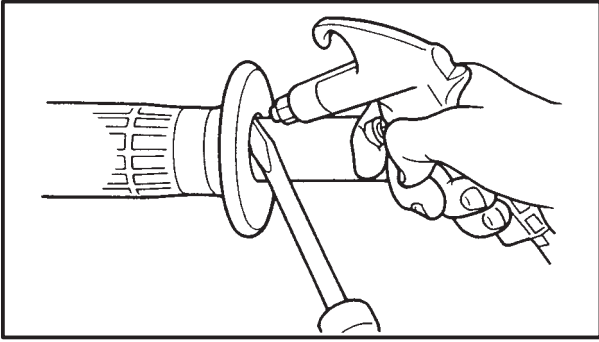
HANDLEBAR



Order	Job name/Part name	Q'ty	Remarks
	Handlebar removal		Remove the parts in order.
1	Headlight assembly	1	NOTE: _____ Disconnect the connector.
2	Handlebar switch lead (left and right), front brake switch lead and clutch switch lead	1	
3	Master cylinder bracket	1	Refer to "HANDLEBAR INSTALLATION" section.
4	Master cylinder	1	
5	Housing (throttle grip)	1	
6	Throttle cable	1	
7	Throttle grip assembly	1	
8	Handle bar switch (right)	1	
9	Clutch switch	1	
10	Clutch cable	1	



Order	Job name/Part name	Q'ty	Remarks
11	Handlebar switch (left)	1	Refer to "HANDLEBAR REMOVAL" section.
12	Grip (left)	1	
13	Lever holder (left)	1	Refer to "HANDLEBAR INSTALLATION" section. Reverse the removal procedure for installation.
14	Upper holder	2	
15	Handlebar	1	



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HANDLEBAR REMOVAL

1. Remove:

✱Grip (Left)

Removal steps:

✱Remove the grip end (left).

✱Blow with compressed air between the handlebar and adhesive side of the grip to remove.

YP704020

HANDLEBAR INSPECTION

1. Inspect:

✱Handlebar

Bends/Cracks/Damage → Replace.

⚠ WARNING

Do not attempt to straighten a bent handlebar as this may dangerously weaken the handlebar.

SR*****

HANDLEBAR INSTALLATION

1. Install:

✱Handlebar ①

✱Upper handlebar holder ②

20 Nm (2.0 m·kg)

NOTE:

✱Apply a light coat of lithium soap base grease onto the handlebar right end.

✱The upper handlebar holders should be installed with the longer side (a) to the forward, then tighten the front bolt as shown.

2. Install:

✱Handlebar switch (right) ①

✱Grip assembly

✱Throttle cable

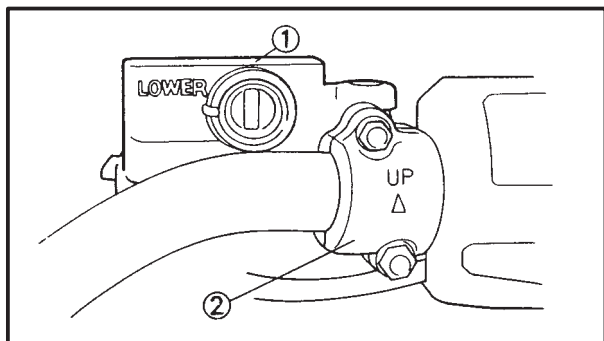
✱Cover (throttle grip)

NOTE:

Align the projection (a) on the handlebar switch with the hole (b) in the handlebar.


⚠ WARNING

Check the throttle grip for smooth operation.



3. Install:

- ✧ Master cylinder ①
- ✧ Master cylinder bracket ②

 9 Nm (0.9 m·kg)**NOTE:**

Install the master cylinder bracket with the “UP” mark facing upward.

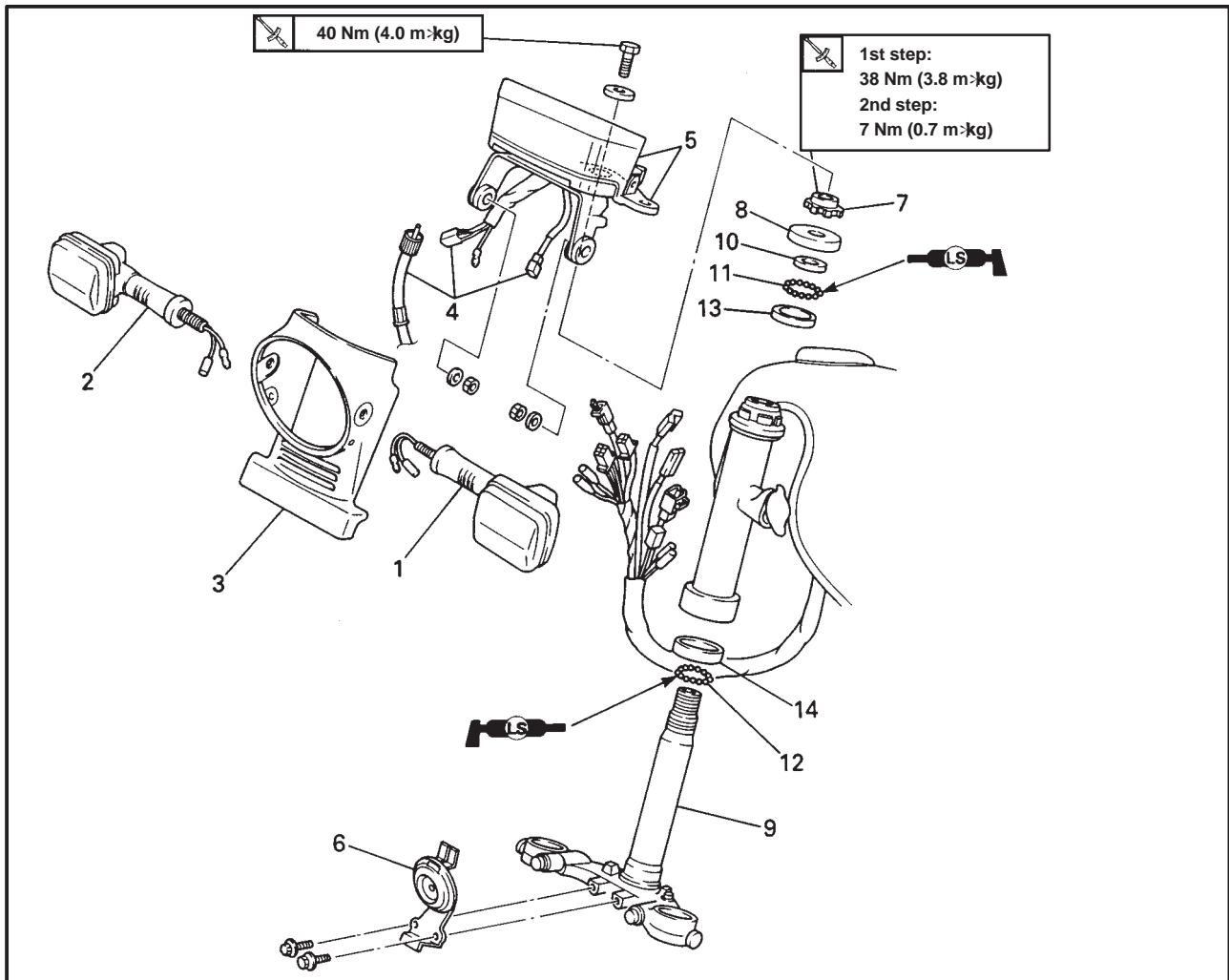
4. Adjust:

- ✧ Throttle cable free play
- ✧ Brake operation.

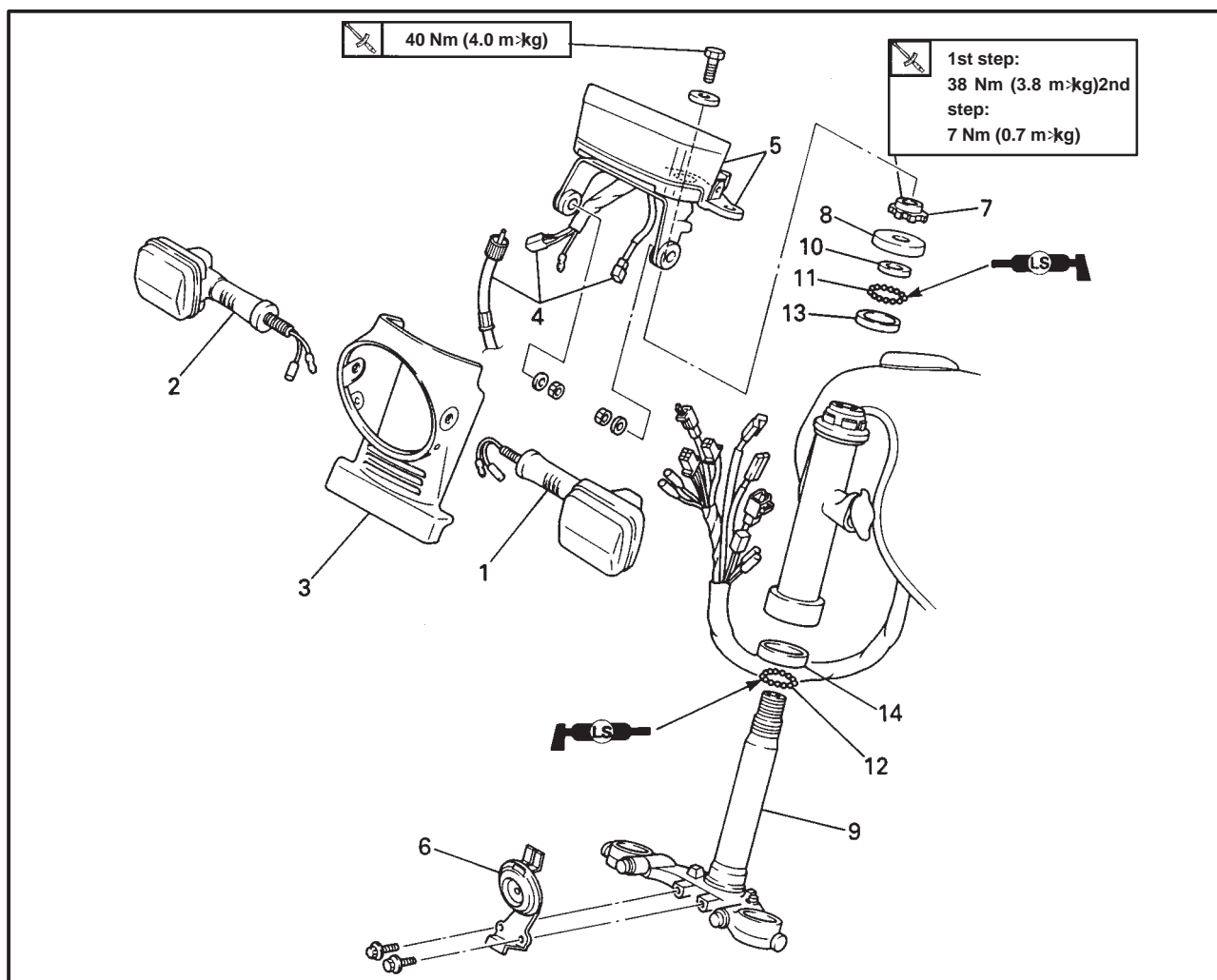
Refer to “THROTTLE CABLE ADJUSTMENT/BRAKE LEVER ADJUSTMENT” section in CHAPTER 3.



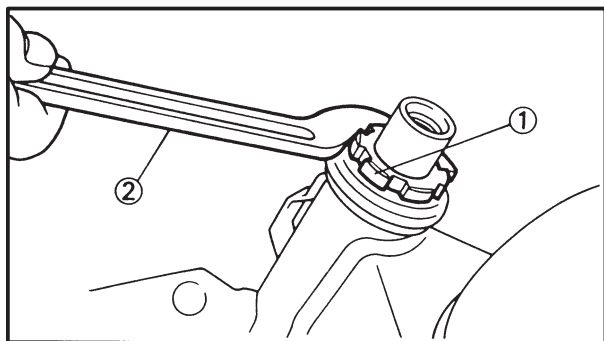
STEERING UNDER BRACKET



Order	Job name/Part name	Q'ty	Remarks
	Under bracket removal		
	Front fork		Remove the parts in order.
	Handlebar		Refer to "FRONT FORK" section.
1	Flasher light assembly (left)	1	Refer to "HANDLEBAR" section.
2	Flasher light assembly (right)	1	
3	Cover	1	
4	Meter cable/Meter lead	1/1	NOTE: _____
5	Meter assembly/Handlebar crown	1/1	Disconnect the connector.
6	Horn	1	
7	Ring nut	1	Refer to "STEERING REMOVAL/INSTALLATION" section.
8	Ball race cover	1	
9	Under bracket	1	



Order	Job name/Part name	Q'ty	Remarks
10	Ball race (upper)	1	Refer to "STEERING REMOVAL/ INSTALLATION" section.
11	Ball	22	
12	Ball	19	
13	Ball race (center)	1	
14	Ball race (lower)	1	Reverse the removal procedure for installation.



YP704010

STEERING REMOVAL**⚠ WARNING**

- ✱Securely support the motorcycle so that there is no danger of it falling over.
- ✱Stand the motorcycle on a level surface.

1. Remove:

- ✱Ring nut ①

Use an exhaust and steering nut wrench ②.


**Exhaust and steering out wrench:
90890-01268**
⚠ WARNING

Securely support the steering shaft so that there is no danger of it falling down.

STEERING INSPECTION

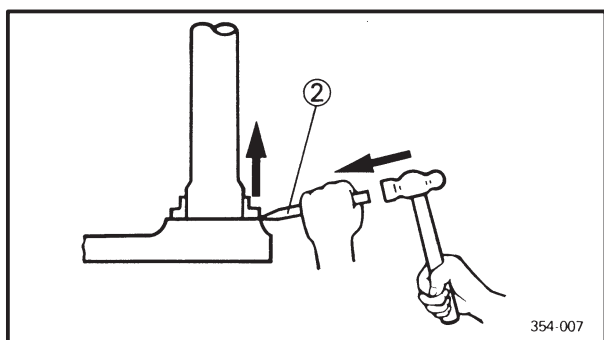
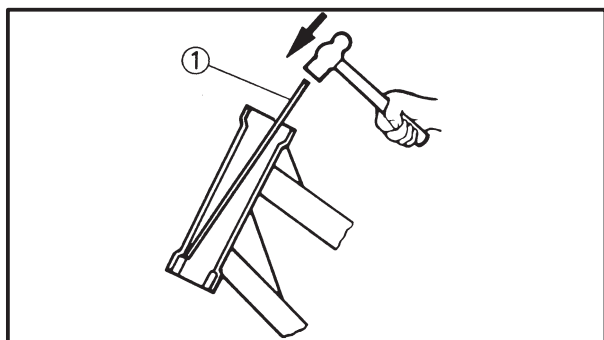
1. Wash the bearing and ball races with a solvent.
2. Inspect:
 - ✱Bearings
 - ✱Ball races
 Pitting/Damage → Replace.

Bearing race replacement steps:

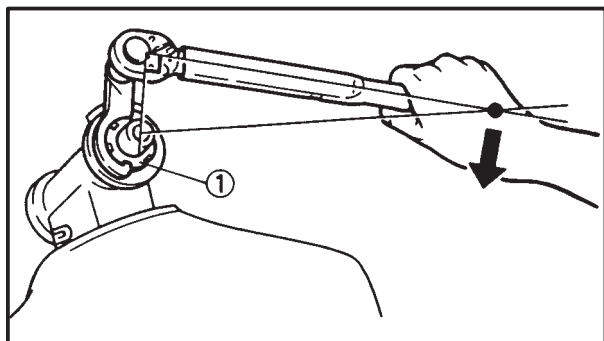
- ✱Remove the ball races on the head pipe using long rod 1 and the hammer as shown.
- ✱Remove the ball race on the under bracket using the floor chisel 2 and the hammer as shown.
- ✱Install the new dust seal and races.

NOTE:

- ✱Always replace bearings and races as a set.
- ✱Replace the dust seal whenever a steering head disassembled.



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EB704030

STEERING INSTALLATION

Reverse the "REMOVAL" procedure.
Note the following points.

1. Lubricate:

- ✧ Bearings (upper and lower)
- ✧ Ball races



Recommended lubricant
Lithium-soap base grease

2. Install:

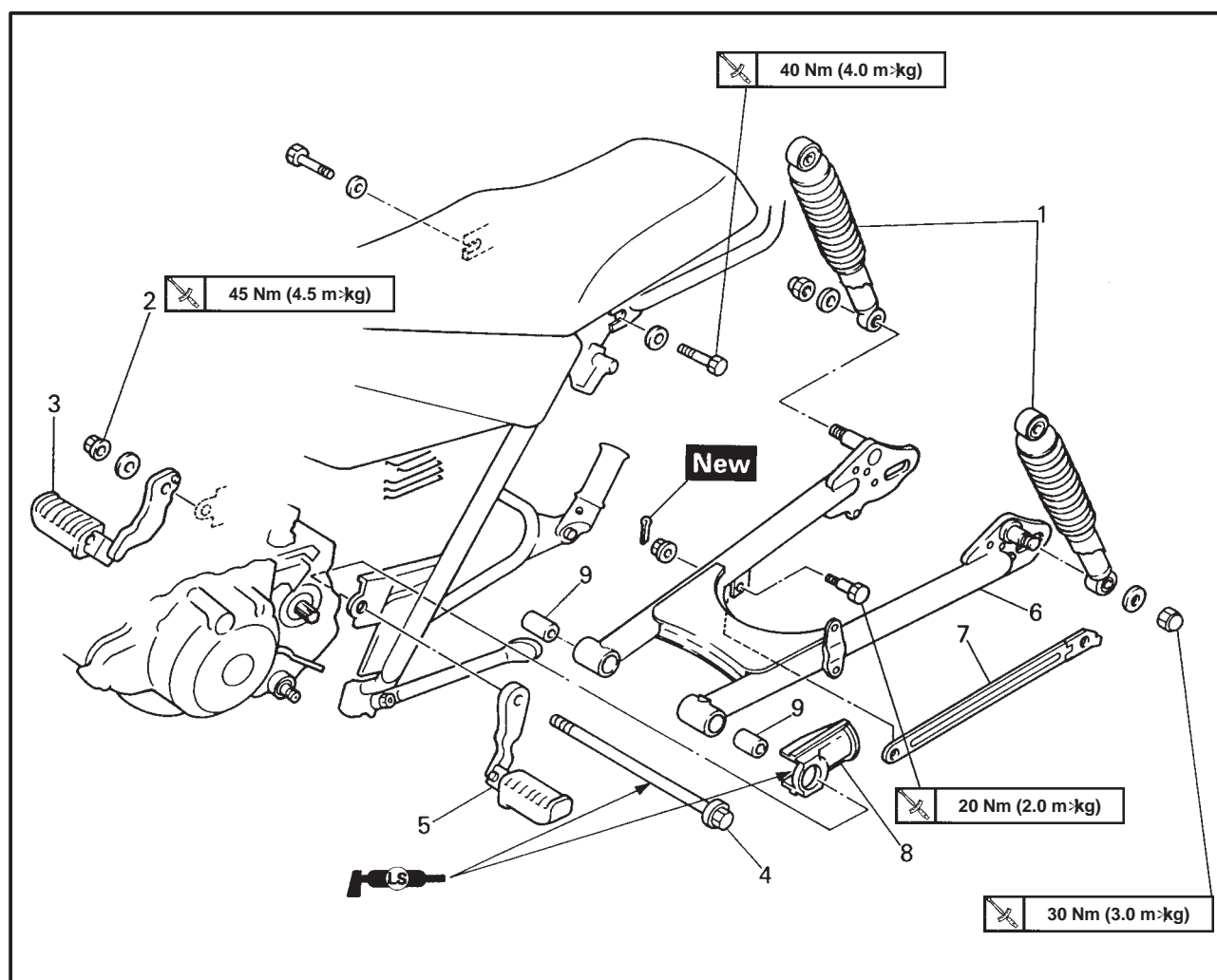
- ✧ Ring nut ①



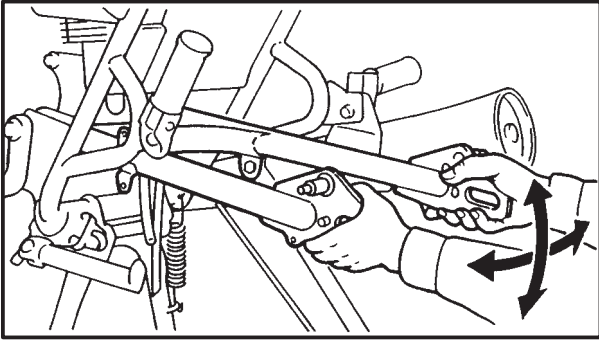
7 Nm (0.7 m·kg)

Refer to "STEERING HEAD INSPECTION"
section in CHAPTER 3.

REAR SHOCK ABSORBER AND SWINGARM



Order	Job name/Part name	Q'ty	Remarks
	Rear shock absorber and swingarm removal		Remove the parts in order.
	Rear wheel		Refer to "REAR WHEEL, REAR BRAKE AND DRIVE CHAIN" section.
	Chain case		
	Drive chain		
1	Rear shock absorber	2	
2	Nut	1	
3	Footrest assembly (right)	1	
4	Pivot shaft	1	
5	Footrest assembly (left)	1	
6	Swingarm	1	
7	Tension bar	1	
8	Cover (swingarm)	1	
9	Bush	2	
			Reverse the removal procedure for installation.



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SWINGARM INSPECTION

1. Inspect:

- ✱Swingarm side play
Free play exists → Check side clearance.
- ✱Swingarm up and down movement
Unsmooth movement/bending/rough spots
→ Grease or replace bearings, solid bushes and collars.

CHAPTER 7. ELECTRICAL

ELECTRICAL COMPONENTS	7-1
SWITCH INSPECTION	7-2
INSPECTION STEPS	7-2
SWITCH CONNECTION AS SHOWN IN THIS MANUAL	7-2
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TROUBLESHOOTING	7-5
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CIRCUIT DIAGRAM	7-10
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TROUBLESHOOTING	7-12
STARTER MOTOR	7-16
CHARGING SYSTEM	7-19
CIRCUIT DIAGRAM	7-19
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LIGHTING SYSTEM	7-23
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TROUBLESHOOTING	7-24
LIGHTING SYSTEM CHECK	7-25
SIGNAL SYSTEM	7-28
CIRCUIT DIAGRAM	7-28
TROUBLESHOOTING	7-29
SIGNAL SYSTEM CHECK	7-31

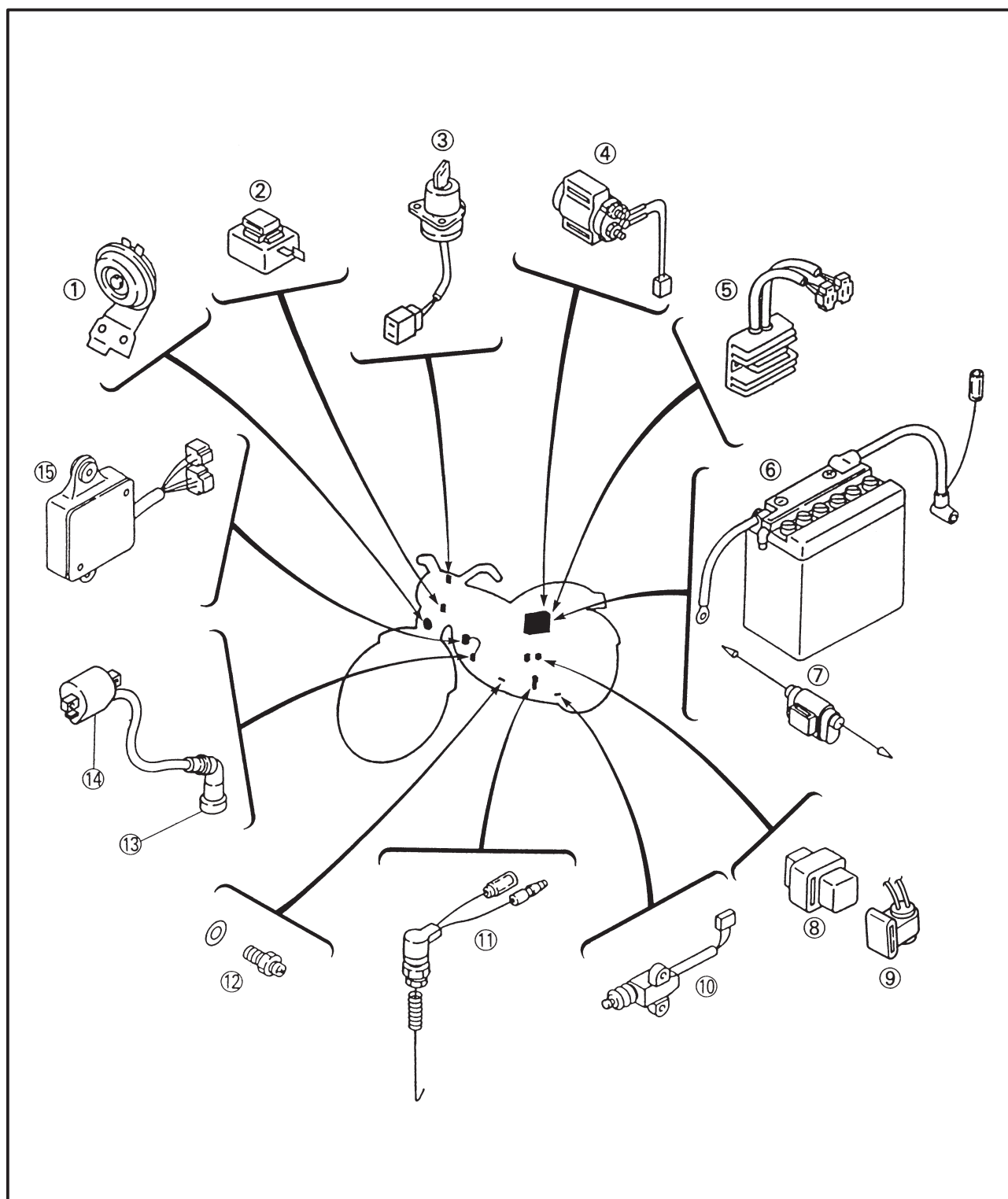


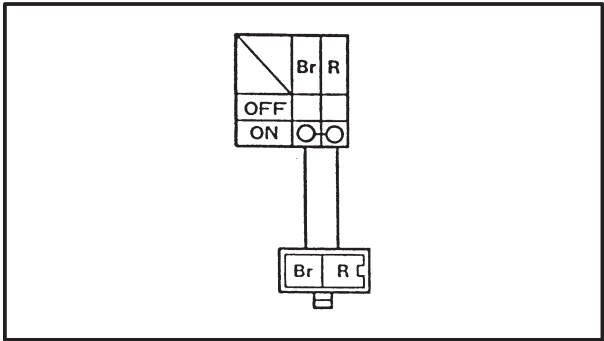
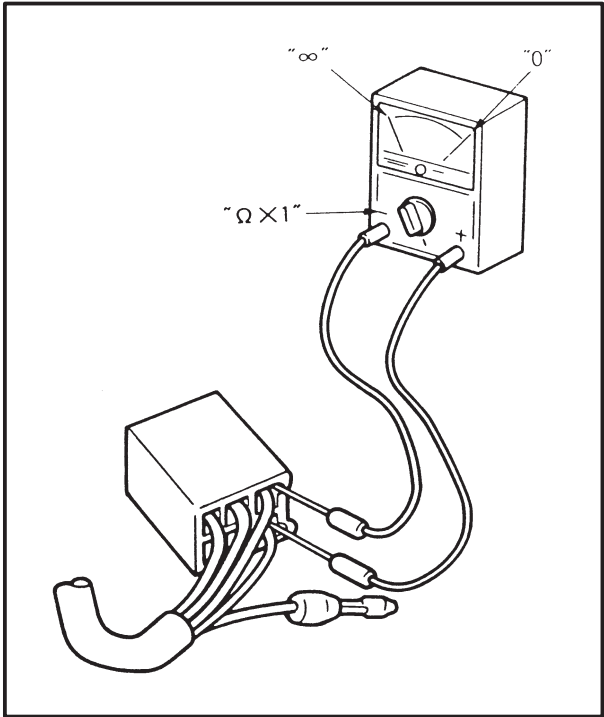
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ELECTRICAL

ELECTRICAL COMPONENTS

- | | | |
|------------------------|---------------------|---------------|
| ① Horn | ⑧ Neutral relay | ⑮ C.D.I. unit |
| ② Flasher relay | ⑨ Thermo switch | |
| ③ Main switch | ⑩ Sidestand switch | |
| ④ Starter relay | ⑪ Rear brake switch | |
| ⑤ Rectifier/Regulator | ⑫ Neutral switch | |
| ⑥ Battery | ⑬ Spark plug cap | |
| ⑦ Fuse holder assembly | ⑭ Ignition coil | |





YP-N

SWITCH INSPECTION INSPECTION STEPS

Using pocket tester, check switches for continuity between their terminals to determine whether they are correctly connected.

Replace the switch component if any of the combinations does not produce the correct reading.



Pocket tester:
90890-03112

NOTE:

- ✳ Turn the switch to the "ON", "OFF" positions several times.
- ✳ Adjust the pocket tester to correct "0" position before checking switches.
- ✳ Set the pocket tester selector to " $\times 1$ " Ω .

SWITCH CONNECTION AS SHOWN IN THIS MANUAL

This manual contains connection charts, like the one shown on the left, showing the terminal connections of switches (e.g. the main switch, handlebar switch, brake switch, lighting switch etc.)

The column on the extreme left indicates the different switch positions, the top line indicates the colors of the leads connected to the terminals on the switch.

" — " indicates terminals between which there is continuity, i.e. a closed circuit, in the given switch position.

In this chart:

"Br and R" have continuity with the switch in the "ON" position.

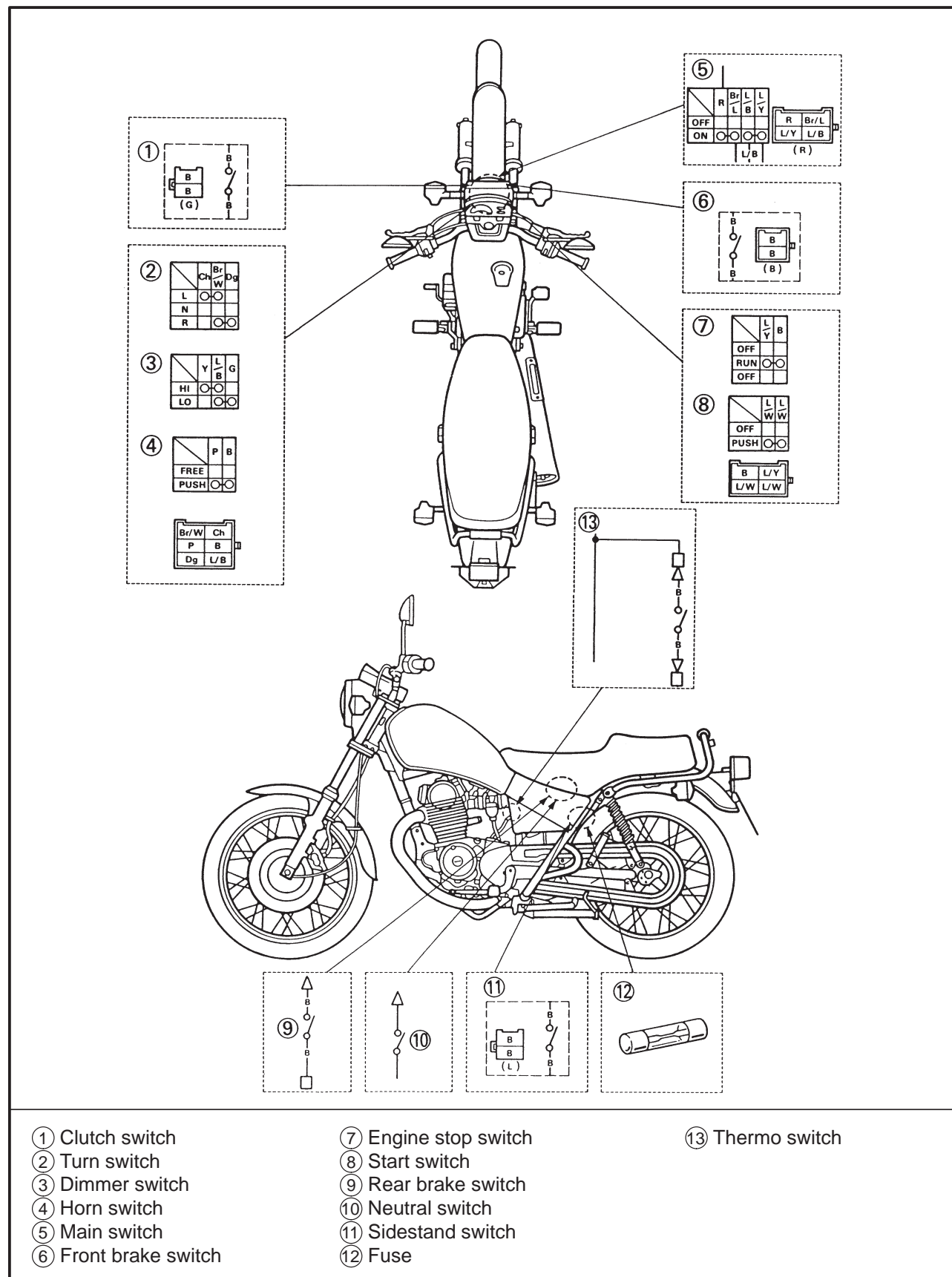


SWITCH CONTINUITY INSPECTION

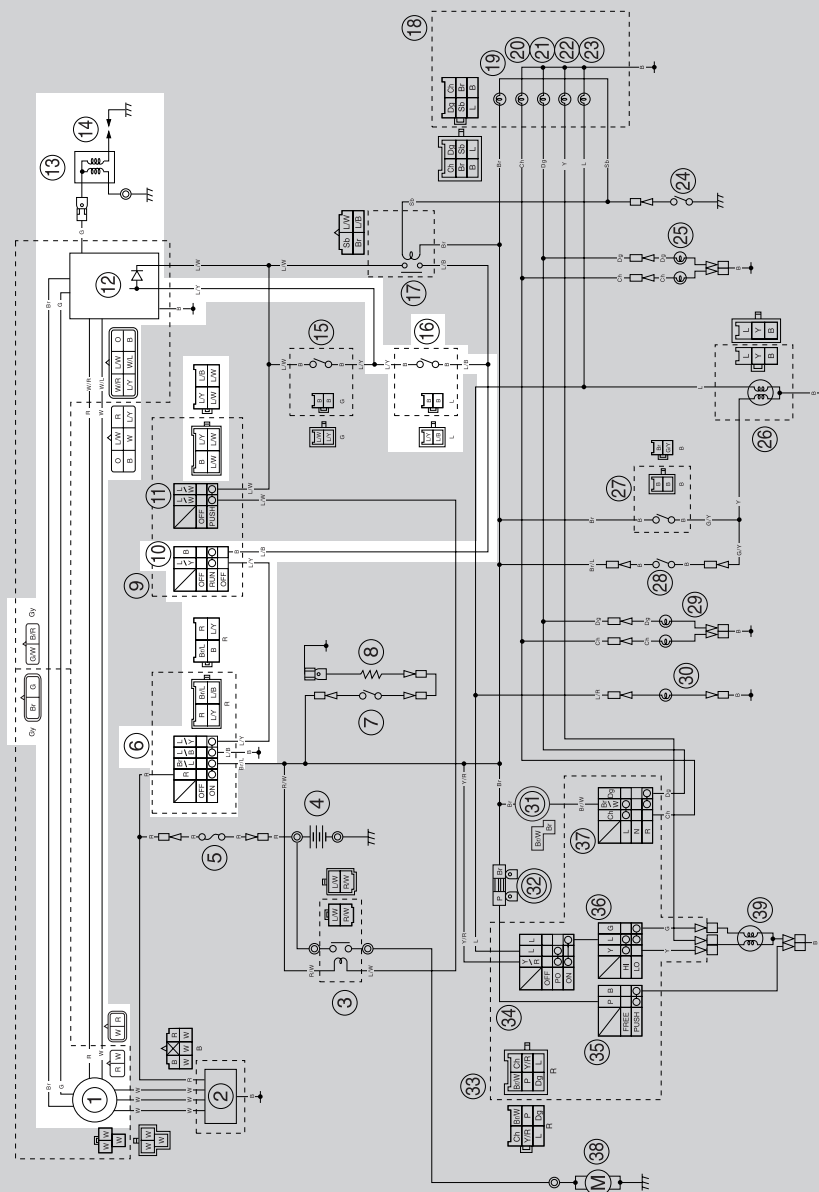
Refer to "SWITCH INSPECTION" and check for continuity between lead terminals.

Poor connection, no continuity → Correct or replace.

* The coupler locations are circled.



IGNITION SYSTEM CIRCUIT DIAGRAM



- ① C.D.I. magneto
- ⑥ Main switch
- ⑩ Engine stop switch
- ⑫ C.D.I. unit
- ⑬ Ignition coil
- ⑭ Spark plug
- ⑮ Sidestand switch



SR802010

TROUBLESHOOTING

IF THE IGNITION SYSTEM FAILS TO OPERATE. (NO SPARK OR INTERMITTENT SPARK)

Procedure

Check:

- | | |
|------------------------------|---|
| 1. Spark plug | 6. Source coil resistance |
| 2. Ignition spark gap | 7. Main switch |
| 3. Spark plug cap resistance | 8. Engine stop switch |
| 4. Ignition coil | 9. Sidestand switch |
| 5. Pickup coil resistance | 10. Wiring connection
(entire ignition system) |

NOTE:

Remove the following parts before troubleshooting.

- 1) Side cover (left and right)
- 2) Seat
- 3) Fuel tank
- 4) Headlight unit

Use the special tools specified in the troubleshooting section.



Ignition checker:
90890-06754
Pocket tester:
90890-03112

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1. Spark plug

Check the spark plug condition.
Check the spark plug type.
Check the spark plug gap.
Refer to "SPARK PLUG INSPECTION" section in CHAPTER 3.



Spark plug gap:
0.6 × 0.7 mm

Standard spark plug:
DR8EA/NGK

OUT OF SPECIFICATION

MEETS
SPECIFICATION

Repair or replace the spark plug





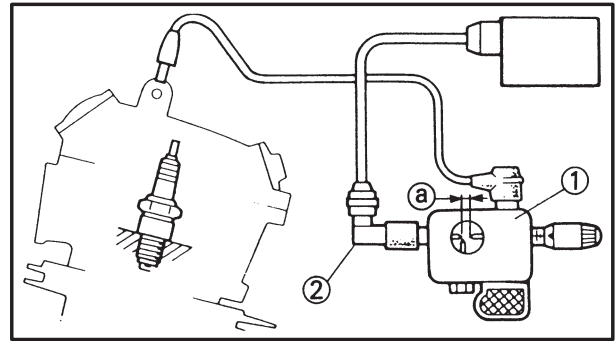
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2. Ignition spark gap

- Disconnect the spark plug cap from the spark plug.
- Connect the ignition checker ① as shown.
- ② Spark plug cap
- Turn the main switch to "ON".
- Check the ignition spark gap ①.
- Check the spark by pushing the starter switch, and increase the spark gap until a misfire occurs.



Minimum spark gap:
6 mm



MEETS SPECIFICATION

The ignition system is not faulty.

OUT OF SPECIFICATION OR NO SPARK

YP****

3. Spark plug cap resistance

- Remove the spark plug cap.
- Connect the pocket tester ($\Omega \times 1k$) to the spark plug cap.

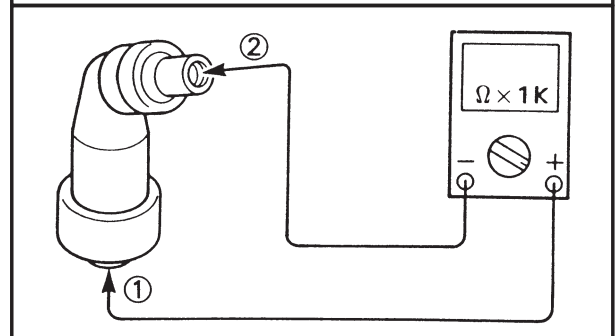
NOTE:

- When removing the spark plug cap, do not pull the spark plug cap from high tension cord. Remove → Turning counterclockwise.
- Connect → Turning clockwise.
- Check the high tension cord when connecting the spark plug cap.
- When connecting the spark plug cap, cut the high tension cord about 5 mm.



Spark plug cap resistance:
10 k Ω (20°C)

Tester (+) lead →
Spark plug side ①
Tester (-) lead →
High tension cord side ②

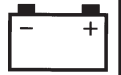


OUT OF SPECIFICATION

Replace the spark plug cap.

MEETS SPECIFICATION





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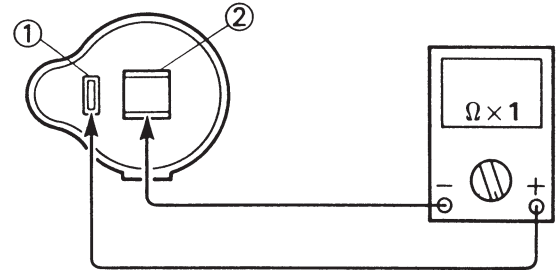
4. Ignition coil resistance

- Disconnect the ignition coil connector from the wireharness.
- Connect the pocket tester ($\Omega \times 1$) to the ignition coil.
- Check if the primary coil has the specified resistance.

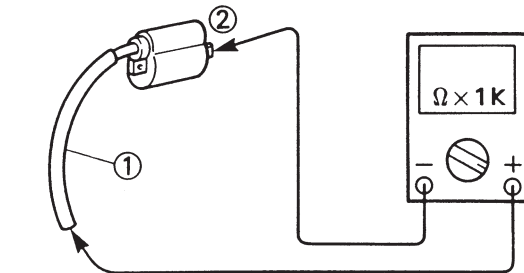


Primary coil resistance:
0.32 ~ 0.48 Ω (20°C)

Tester (+) lead →
Orange Terminal ①
Tester (-) lead →
Ground Terminal ②



Tester (+) lead →
Spark plug lead ①
Tester (-) lead →
Orange Terminal ②



- Connect the pocket tester ($\Omega \times 1k$) to the ignition coil.
- Check the secondary has the specified resistance.



Secondary coil resistance:
5.68 ~ 8.52 k Ω (20°C)

OUT OF SPECIFICATION


Replace the ignition coil.

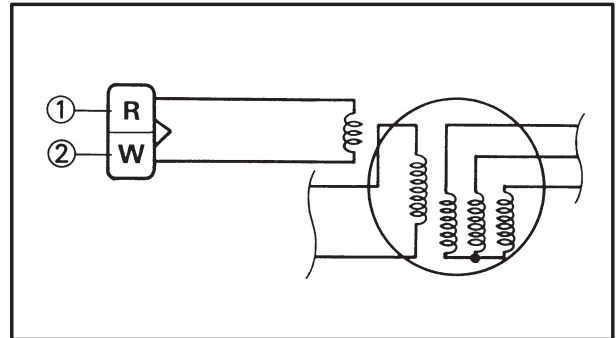
BOTH MEET
SPECIFICATION





yp*****

5. Pickup coil resistance	
<ul style="list-style-type: none"> • Disconnect the pickup coil coupler from the wireharness. • Connect the pocket tester ($\Omega \times 100$) to the pickup coil coupler. 	
Tester (+) lead →	White Terminal ①
Tester (-) lead →	Red Terminal ②
<ul style="list-style-type: none"> • Check the pickup coil has the specified resistance. 	
	Pickup coil resistance: 659 ~ 984 Ω (20°C)




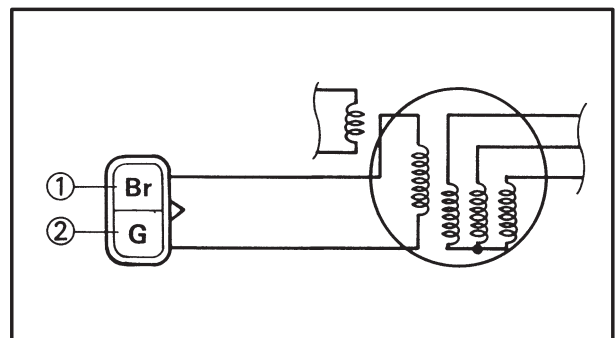
OUT OF SPECIFICATION

Replace the pickup coil.

MEETS SPECIFICATION

T*****

6. Source coil resistance	
<ul style="list-style-type: none"> • Disconnect the source coil coupler from the wireharness. • Connect the pocket tester ($\Omega \times 100$) to the charging coil coupler. 	
Tester (+) lead →	Brown Terminal ①
Tester (-) lead →	Green Terminal ②
<ul style="list-style-type: none"> • Check the source coil has the specified resistance. 	
	Source coil resistance: 624 ~ 936 Ω (20°C)



OUT OF SPECIFICATION

Replace the source coil.

MEETS SPECIFICATION

yp*****

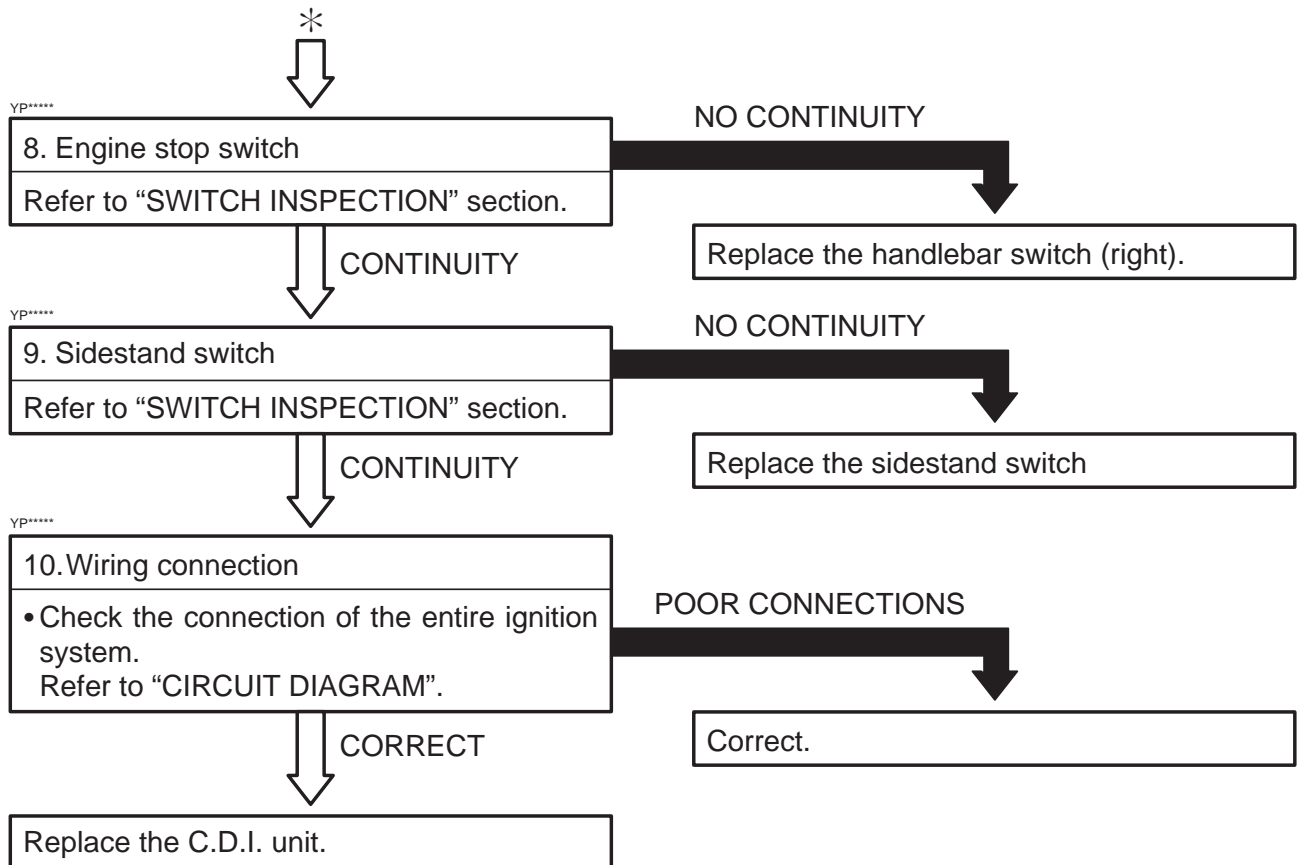
7. Main switch
Refer to "SWITCH INSPECTION" section.

NO CONTINUITY

Replace the main switch.

CONTINUITY

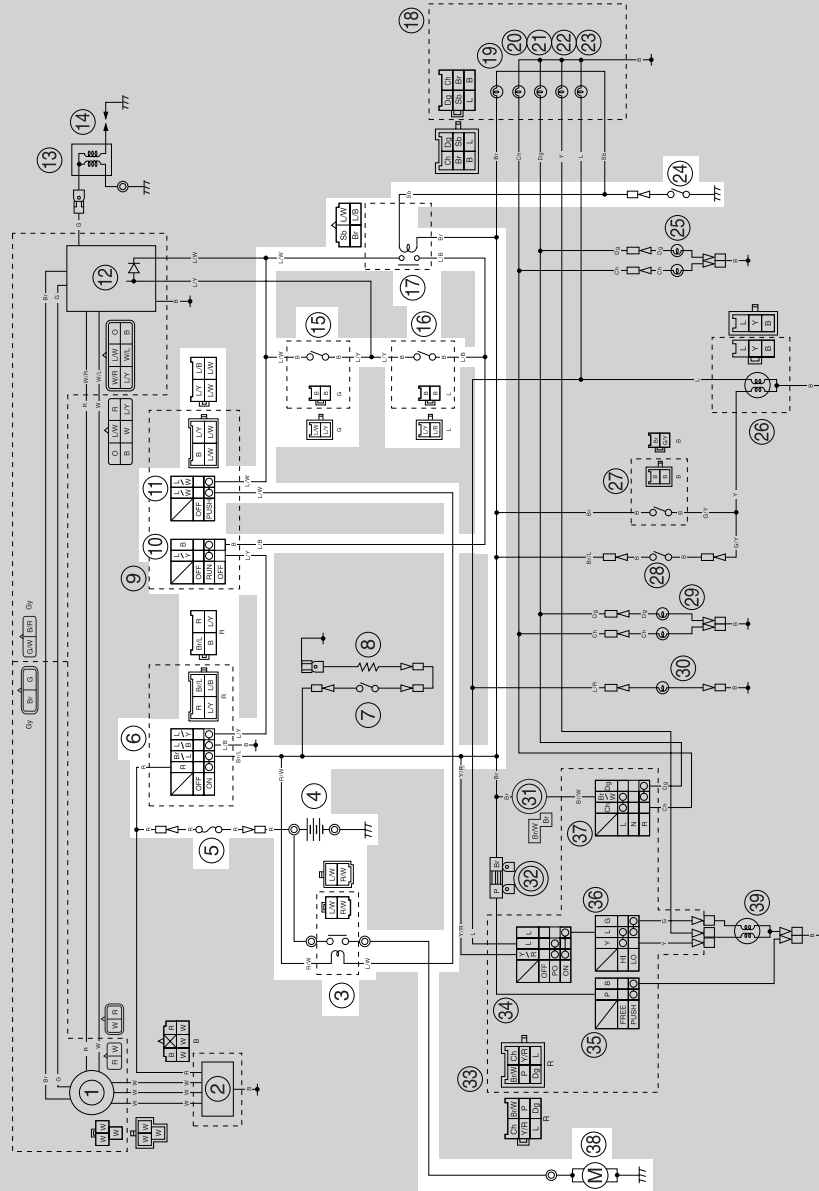




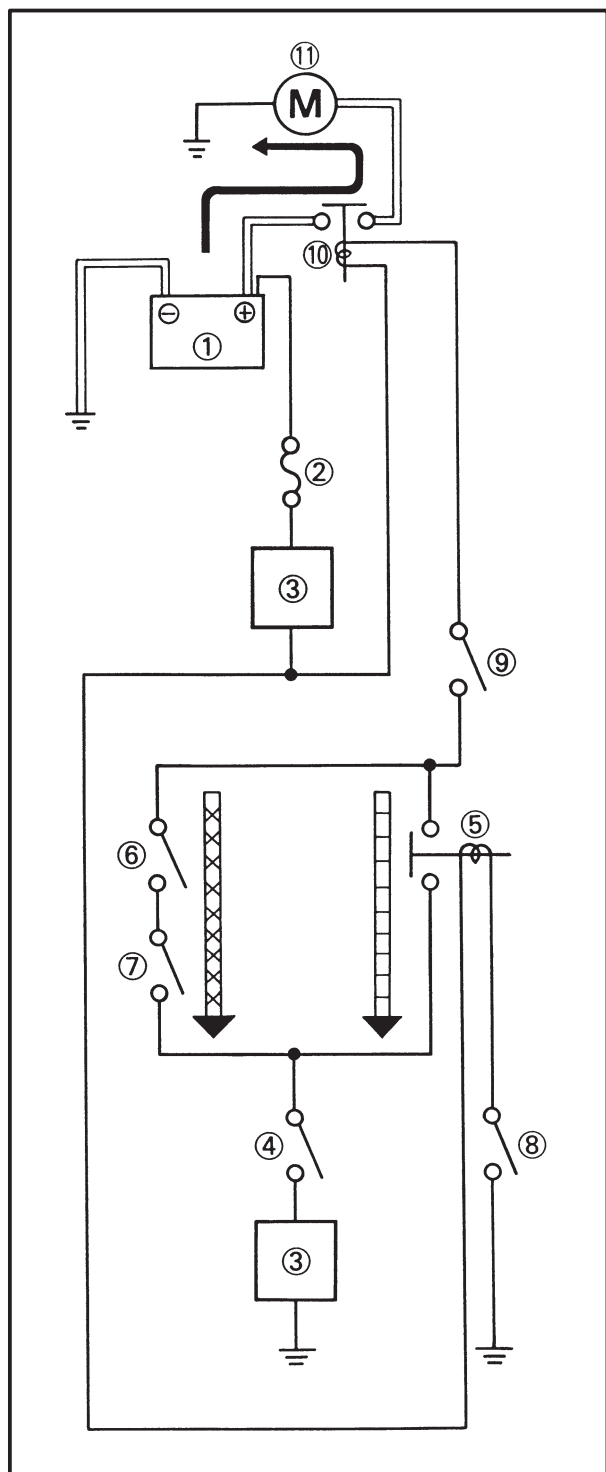


EB80300

ELECTRIC STARTING SYSTEM CIRCUIT DIAGRAM



- ③ Starter relay
- ④ Battery
- ⑤ Fuse
- ⑥ Main switch
- ⑩ Engine stop switch
- ⑪ Start switch
- ⑮ Clutch switch
- ⑯ Sidestand switch
- ⑰ Neutral relay
- ⑳ Neutral switch
- ㉟ Starter motor



SR*****

STARTING CIRCUIT OPERATION

The starting circuit on this model consists of the starter motor, starter relay, and the neutral relay. If the engine stop switch and the main switch are both closed, the starter motor can operate only if:

The transmission is in neutral (the neutral relay is closed).

or if

The clutch lever is pulled to the handlebar (the clutch switch is closed) and the side-stand is up (the sidestand switch is closed).



WHEN THE TRANSMISSION IS IN NEUTRAL



WHEN THE SIDE STAND IS UP AND THE CLUTCH LEVER IS PULLED IN

- ① Battery
- ② Main fuse
- ③ Main switch
- ④ Engine stop switch
- ⑤ Neutral relay
- ⑥ Clutch switch
- ⑦ Sidestand switch
- ⑧ Neutral switch
- ⑨ Start switch
- ⑩ Starter relay
- ⑪ Starter motor



YP803020

TROUBLESHOOTING

IF THE STARTER MOTOR FAILS TO OPERATE.

Procedure

Check:

- | | |
|------------------|--|
| 1. Fuse | 7. Engine stop switch |
| 2. Battery | 8. Neutral switch |
| 3. Starter motor | 9. Sidestand switch |
| 4. Starter relay | 10. Clutch switch |
| 5. Neutral relay | 11. Start switch |
| 6. Main switch | 12. Wiring connection (entire starting system) |

NOTE:

Remove the following parts before trouble-shooting.

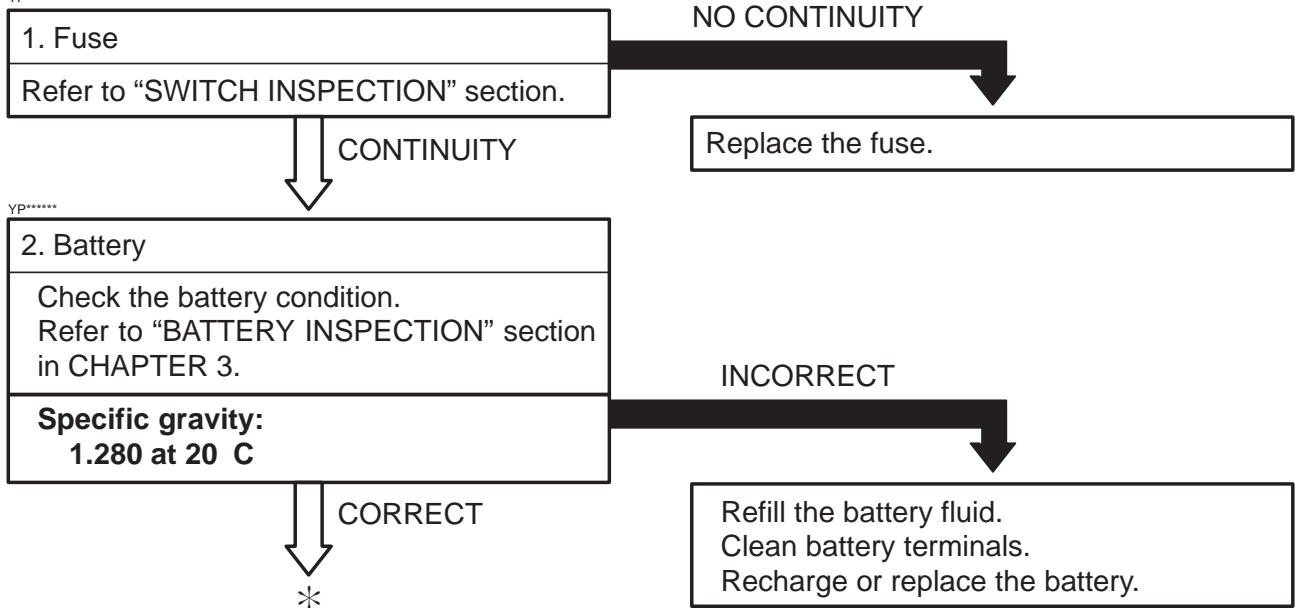
- 1) Side cover (left and right)
- 2) Headlight unit
- 3) Seat
- 4) Fuel tank

Use the special tools specified in the trouble-shooting section.



Pocket tester:
90890-03112

yp*****



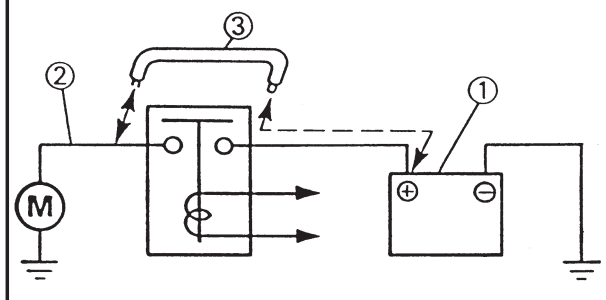
yp*****



yp*****

3. Starter motor

- Connect the battery positive terminal ① and starter motor cable ② using a jumper lead ③ *.
- Check the starter motor operation.



MOVES



*

⚠ WARNING

- A wire used as a jumper lead must have the equivalent capacity as that of the battery lead or more, otherwise it may burn.
- This check is likely to produce sparks, so be sure that no flammable gas or fluid is in the vicinity.

DOES NOT MOVE



Repair or replace the starter motor.

yp*****

4. Starter relay

- Disconnect the relay unit coupler from the wireharness.
- Connect the pocket tester ($\Omega \times 1$) and battery (12 V) to the relay unit coupler terminals.

Battery (+) lead →

Blue/White terminal ①

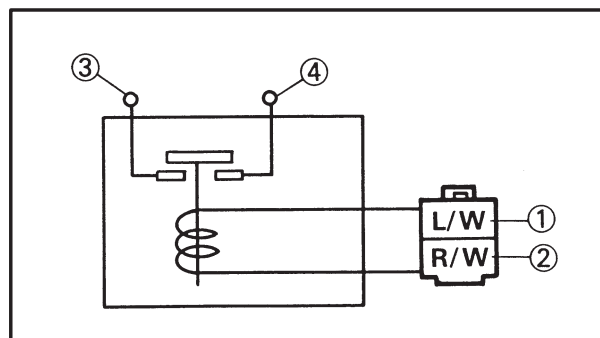
Battery (-) lead →

Red/White terminal ②

- Check the starter relay for continuity.

Tester (+) lead → ③ terminal

Tester (-) lead → ④ terminal



NO CONTINUITY



Replace the starter relay.

CONTINUITY



*



yp*****

5. Neutral relay

- Remove the relay from the frame.
- Connect the pocket tester ($\Omega \times 100$) to the Battery and the relay connector.

Tester (+) lead →

Terminal 1 ①

Tester (-) lead →

Terminal 3 ②

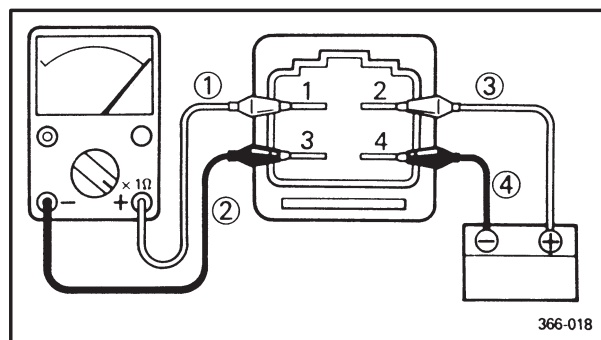
Battery (+) lead →

Terminal 2 ③

Battery (-) lead →

Terminal 4 ④

Check the Terminal 1 and 3 for continuity.



NO CONTINUITY

Replace the neutral relay.

CONTINUITY

yp*****

6. Main switch

Refer to "SWITCH INSPECTION" section.

NO CONTINUITY

Replace the main switch

CONTINUITY

yp*****

7. Engine stop switch

Refer to "SWITCH INSPECTION" section.

NO CONTINUITY

Replace the handlebar switch (right).

CONTINUITY

yp*****

8. Neutral switch

Refer to "SWITCH INSPECTION" section.

NO CONTINUITY (at NEUTRAL position)

Replace the neutral switch.

CONTINUITY
(at NEUTRAL position)

yp*****

9. Sidestand switch

Refer to "SWITCH INSPECTION" section.

NO CONTINUITY

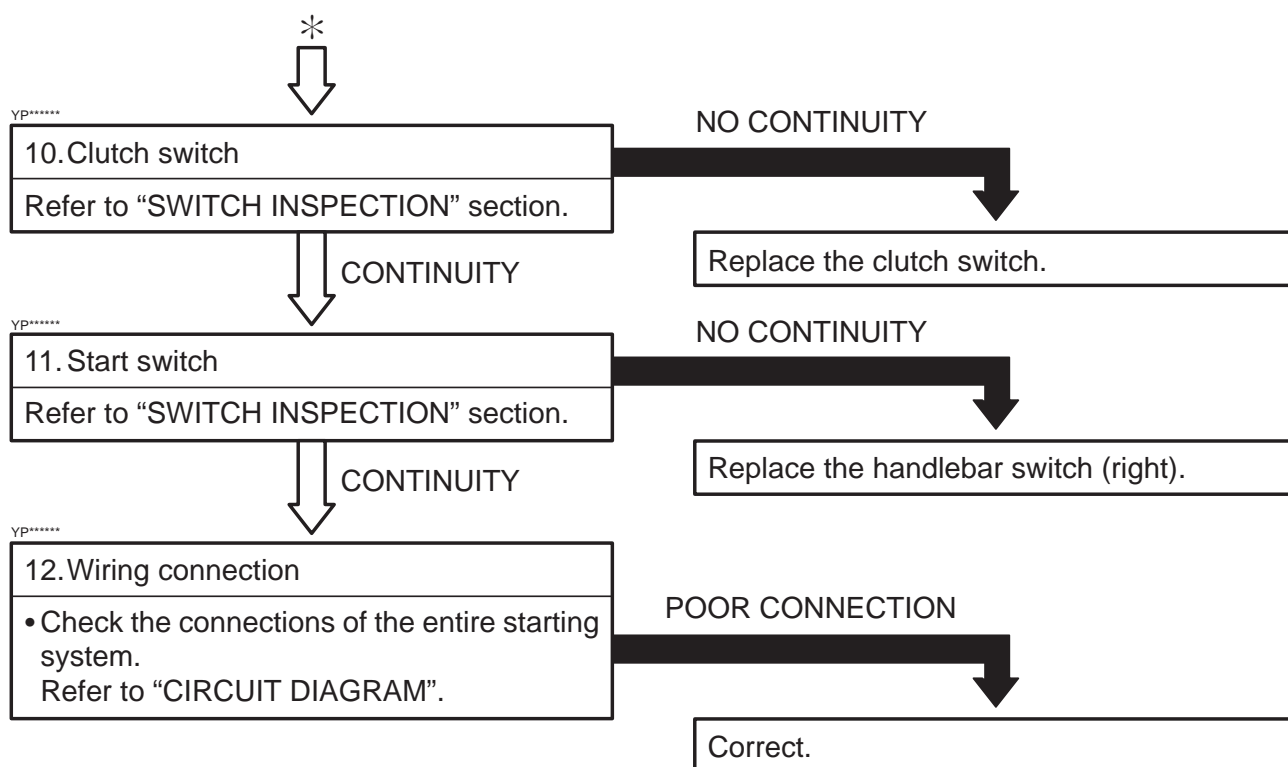
Replace the sidestand switch.

CONTINUITY



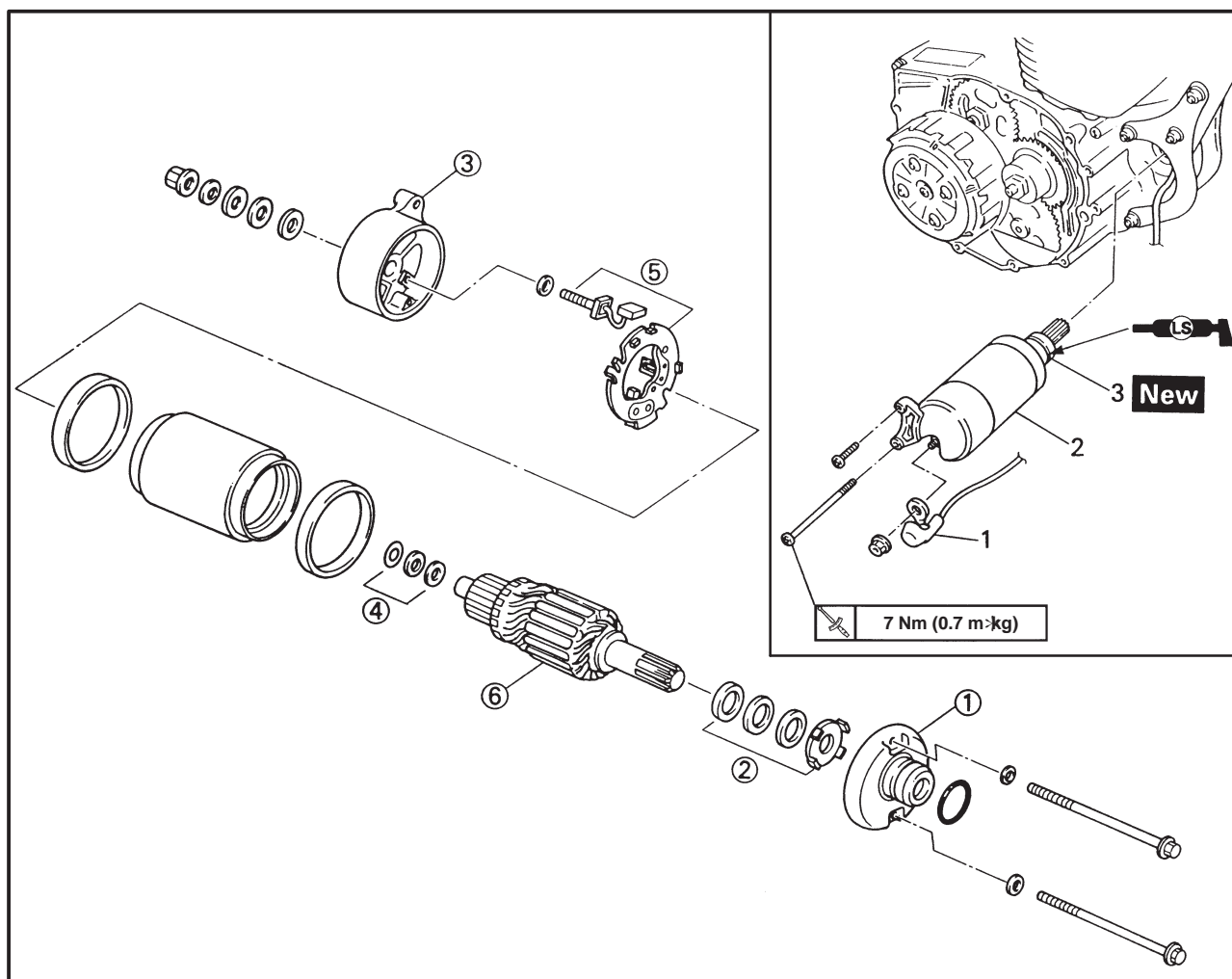
ELECTRICAL STARTING SYSTEM

ELEC





STARTER MOTOR



Order	Job name/Part name	Q'ty	Remarks
	Starter motor removal Drain the engine oil Crankcase cover (right)		Remove the parts in order. Refer to "ENGINE OIL REPLACEMENT" section in CHAPTER 3. Refer to "CLUTCH REMOVAL" section in CHAPTER 4.
1	Starter motor lead	1	Reverse the removal procedure for installation.
2	Starter motor	1	
3	O-ring	1	
	Starter motor disassembly		Disassemble the parts in order.
①	Front bracket	1	Refer to "Assembly" section.
②	Washer set	1	
③	Rear bracket	1	
④	Washer set	1	
⑤	Brush holder/brush	1	
⑥	Armature coil	1	
			Reverse the disassembly procedure for assembly.



YP803034

Inspection and repair

1. Inspect:
 - ✳Commutator
Dirt → Clean it with #600 grit sandpaper.
2. Measure:
 - ✳Commutator diameter (a)



Commutator wear limit:
27 mm

Out of specification → Replace the starter motor

3. Measure:
 - ✳Mica undercut (a)



Mica undercut:
0.7 mm

Out of specification → Scrape the mica to the proper value (a hacksaw blade can be ground to fit).

NOTE:

The mica insulation of the commutator must be undercut to ensure proper operation of commutator.

4. Inspect:
 - ✳Armature coil resistances (installation/continuity)
Defects → Replace the starter motor.
If commutator is dirty, clean it with sandpaper.

	Good condition	Bad condition		
A			×	×
B	×		×	

: Continuity

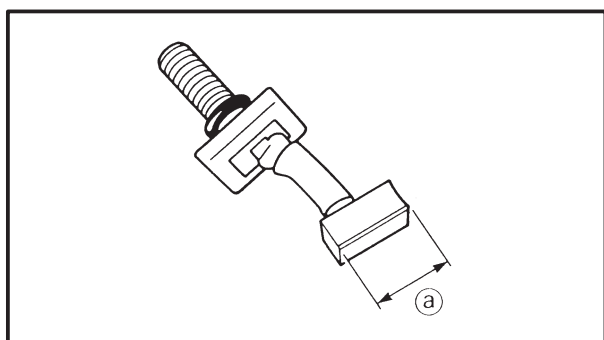
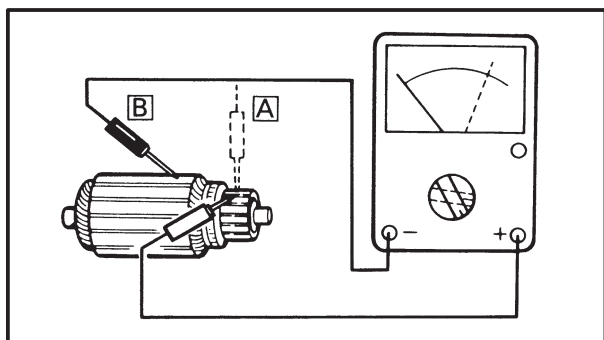
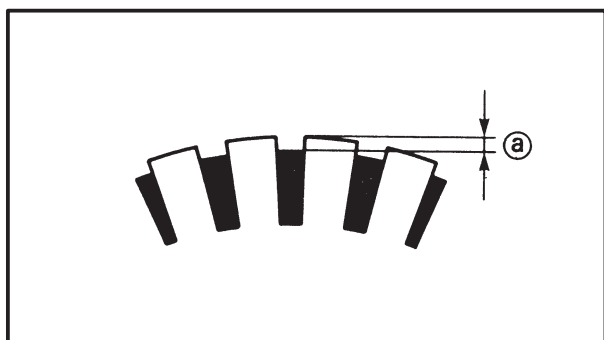
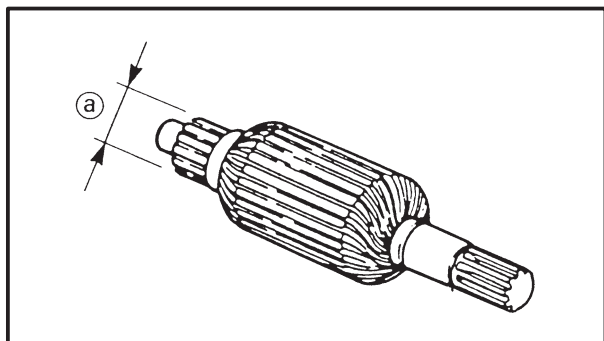
×: No continuity

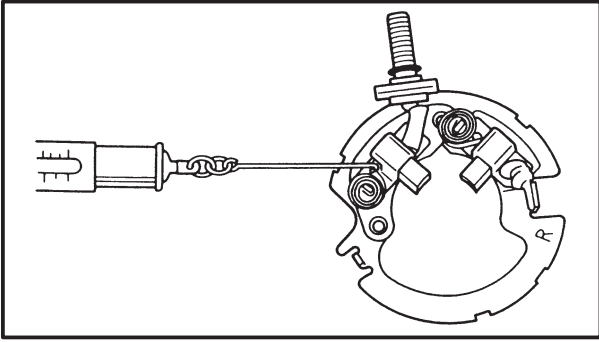
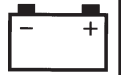
Bad condition → Replace.

5. Measure:
 - ✳Brush length (a)
Out of specification → Replace.



Brush length wear limit:
3.5 mm





6. Measure:

✳️ Brush spring force

Fatigue/out of specification → Replace as a set.



Brush spring force:
540 ~ 660 g

7. Inspect:

✳️ Oil seal

Wear/damage → Replace.

YP*****

Assembly

Reverse the “Disassembly” procedure.

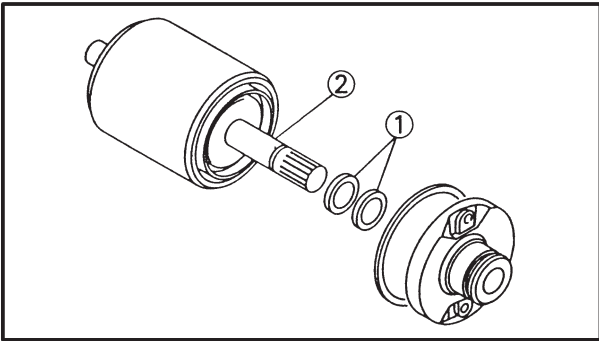
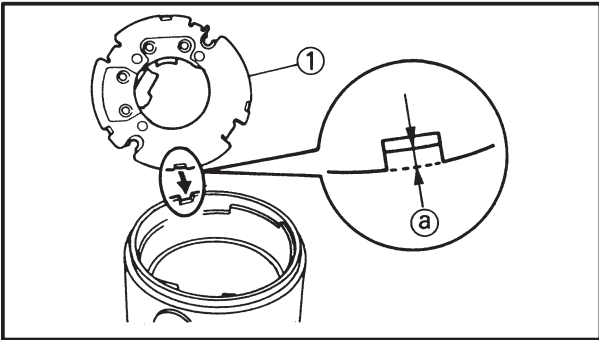
Note the following points.

1. Install:

✳️ Brush holder ①

NOTE:

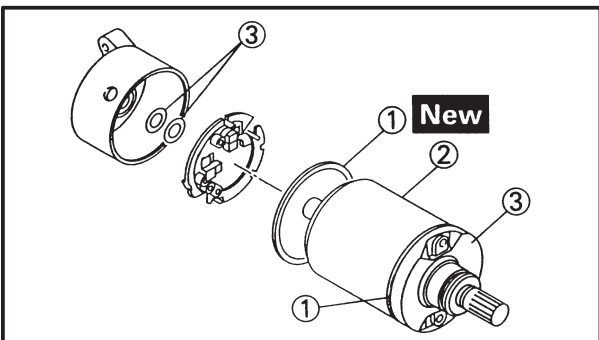
Align the lib on the brush holder with the slot (a) on the bracket, before assembly.



2. Install:

✳️ Washer set ①

✳️ Armature coil ②



3. Install:

✳️ Ring ① **New**

✳️ Stator assembly ②

✳️ Washer set ③

✳️ Front bracket

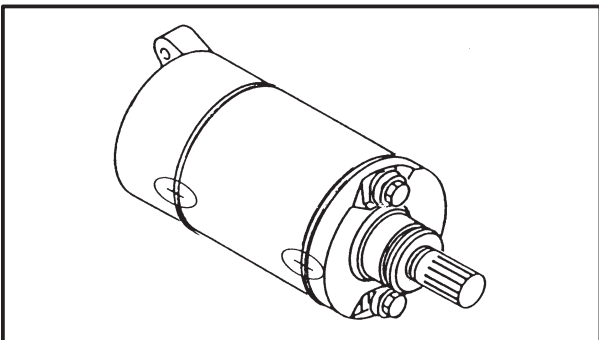


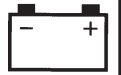
3 Nm (0.3 m·kg)

NOTE:

✳️ Apply molybdenum grease lightly on to the bearings of the starter motor.

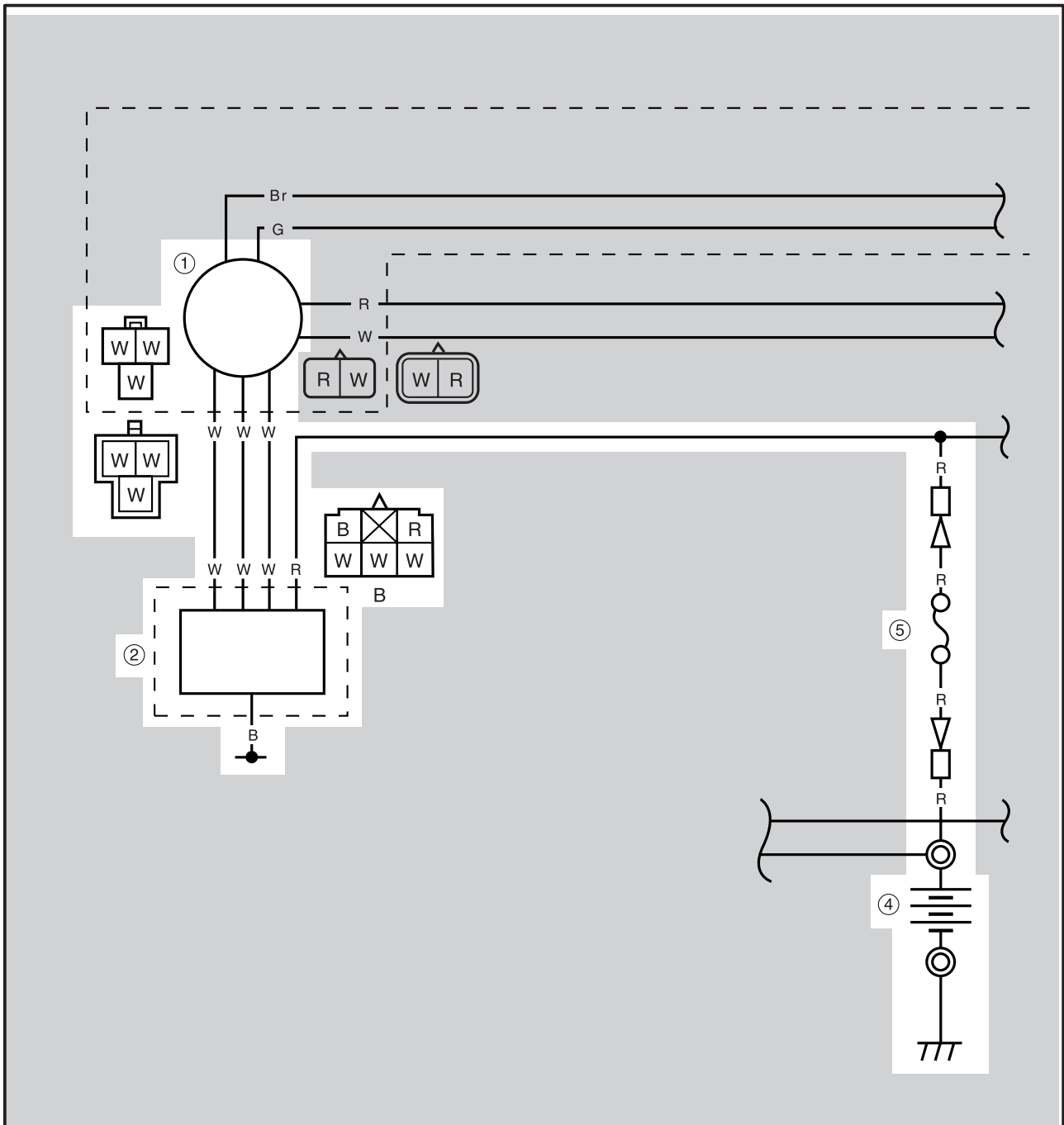
✳️ Align the match marks on the yoke with the match marks on the brackets.





YP804000

CHARGING SYSTEM CIRCUIT DIAGRAM



- ① C.D.I. magneto
- ② Rectifier/Regulator
- ④ Battery
- ⑤ Fuse



YP804010

TROUBLESHOOTING

IF THE BATTERY IS NOT CHARGED

Procedure

Check:

1. Fuse
2. Battery
3. Charging voltage
4. Stator coil resistance
5. Wiring system (entire charging system)

NOTE:

Remove the following parts before troubleshooting.

- 1) Side cover (left and right)
- 2) Seat
- 3) Fuse

Use the special tools specified in the troubleshooting section.

**Engine tachometer****90890-03113****Pocket tester:****90890-03112**

yp*****

1. Fuse
Refer to "SWITCH INSPECTION" section.

NO CONTINUITY

CONTINUITY

Replace the fuse.

yp*****

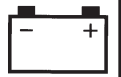
2. Battery
Check the battery condition. Refer to "BATTERY INSPECTION" section in CHAPTER 3.
Specific gravity: 1.280 at 20 C

INCORRECT

CORRECT

Refill the battery fluid.
Clean battery terminals.
Recharge or replace the battery.

*



YP*****

3. Charging voltage

- Connect the engine tachometer to the spark plug lead.
- Connect the pocket tester (DC20V) to the battery.

Tester (+) lead →
Battery (+) terminal ①

Tester (-) lead →
Battery (-) terminal ②

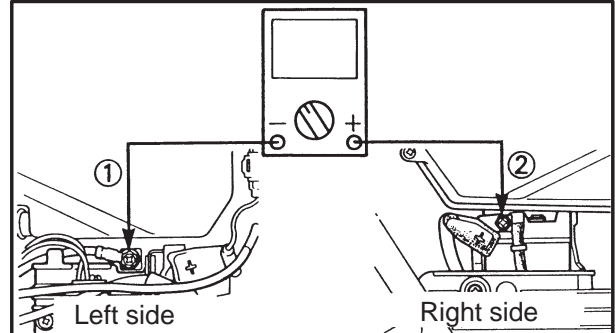
- Measure the battery terminal voltage.
- Start the engine and accelerate to about 5,000 r/min.
- Check the terminal voltage.



Charging voltage:
14.5 V at 5,000 r/min

NOTE:

Use a fully charged battery.



MEETS SPECIFICATION

The charging circuit is not faulty.
Replace the battery.



OUT OF SPECIFICATION

YP*****

4. Stator coil resistance

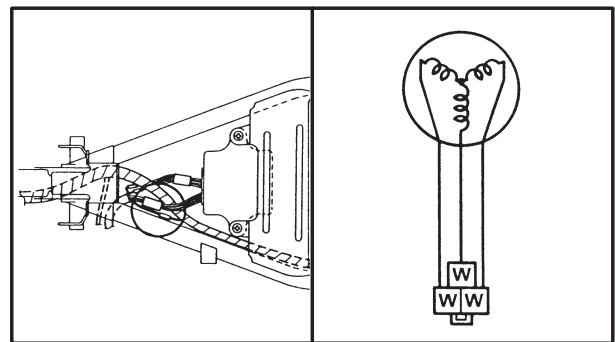
- Remove the C.D.I. magneto coupler from wireharness.
- Connect the pocket tester ($\Omega \times 1$) to the stator coil.

Tester (+) lead → White terminal
Tester (-) lead → White terminal

- Measure the stator coil resistance.



Stator coil resistance:
0.48 ~ 0.72 Ω (20°C)



OUT OF SPECIFICATION

Replace the stator coil.



MEETS SPECIFICATION

*



YP*****

5. Wiring connection

Check the entire charging system for connections.
Refer to "CIRCUIT DIAGRAM" section.

POOR CONNECTION



CORRECT

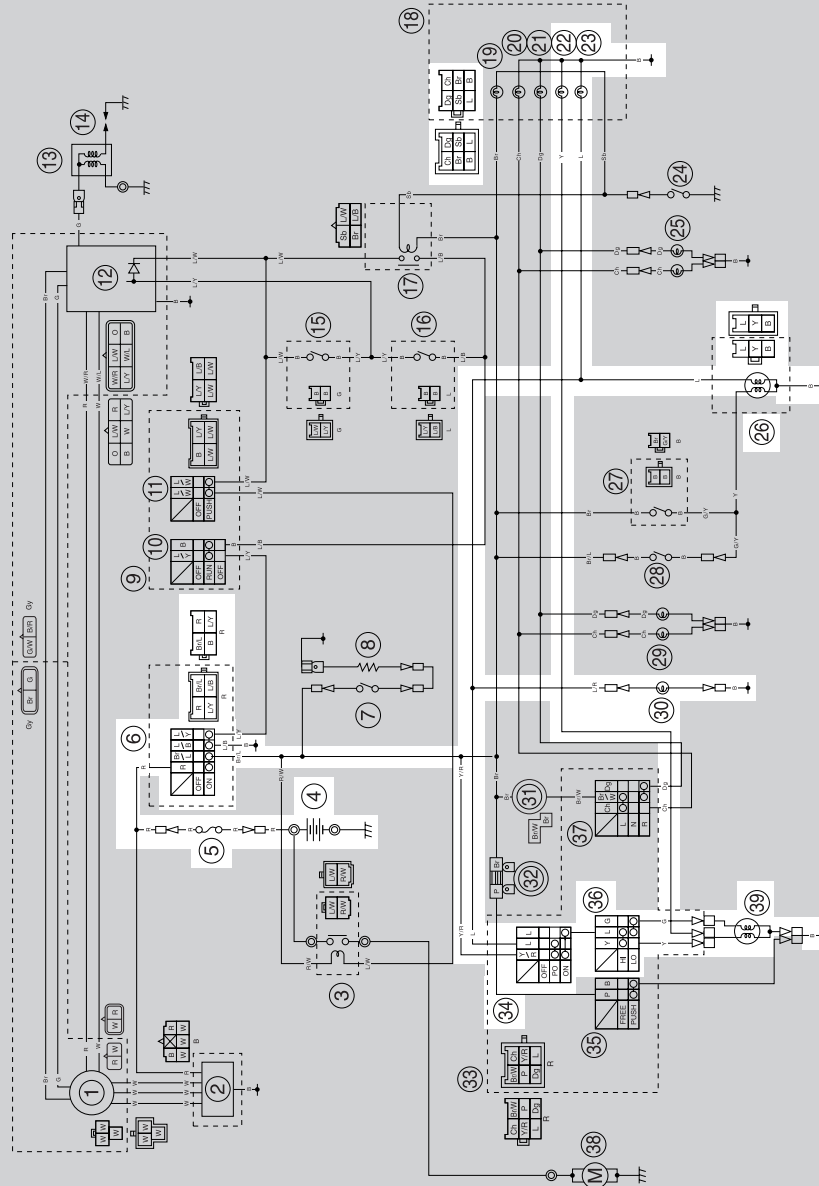
Replace the rectifier/regulator.

Correct.



EB804000

LIGHTING SYSTEM CIRCUIT DIAGRAM



- ④ Battery
- ⑤ Fuse
- ⑥ Main switch
- ②② High beam indicator light
- ②③ Meter light
- ②⑥ Tail/Brake light
- ③① Auxiliary light
- ③④ Lights switch
- ③⑥ Dimmer switch
- ③⑨ Headlight



YP805010

TROUBLESHOOTING

IF THE HEADLIGHT, AUXILIARY LIGHT, HIGH BEAM INDICATOR LIGHT, TAILLIGHT AND/OR METER LIGHT FAIL TO COME ON.

Procedure

Check:

1. Fuse
2. Battery
3. Main switch
4. Lights switch
5. Dimmer switch
6. Wiring connection (entire lighting system)

NOTE:

Remove the following parts before troubleshooting.

- 1) Seat
- 2) Fuel tank
- 3) Side cover (left and right)
- 4) Headlight unit

Use the special tools specified in the troubleshooting section.



Pocket tester:
90890-03112

yp*****

1. Fuse
Refer to "SWITCH INSPECTION" section.

NO CONTINUITY

CONTINUITY

Replace the fuse.

yp*****

2. Battery
Check the battery condition.
Refer to "BATTERY INSPECTION" section in CHAPTER 3.
Specific gravity:
1.280 at 20 C

INCORRECT

CORRECT

Refill the battery fluid.
Clean battery terminals.
Recharge or replace the battery.

yp*****

3. Main switch
Refer to "SWITCH INSPECTION" section.

NO CONTINUITY

CONTINUITY

Replace the main switch.

*



YP*****

4. Lights switch
Refer to "SWITCH INSPECTION" section.

NO CONTINUITY

Replace the handlebar switch (left).



CONTINUITY

YP*****

5. Dimmer switch
Refer to "SWITCH INSPECTION" section.

NO CONTINUITY

Replace the handlebar switch (left).



CONTINUITY

YP*****

6. Wiring connection
• Check the connections of the entire lighting system.
Refer to "WIRING DIAGRAM".

POOR CONNECTIONS

Correct.



CORRECT

Check the condition of each of the lighting system's circuits.
Refer to "LIGHTING SYSTEM CHECK"

SR805020

LIGHTING SYSTEM CHECK

1. If the headlight and the high beam indicator light fail to come on.

NO CONTINUITY

1. Bulb and bulb socket
Refer to "SWITCH INSPECTION" section.

Replace the bulb and/or bulb socket.



CONTINUITY

2. Voltage
• Connect the pocket tester (DC20V) to the headlight and high beam indicator light couplers.

- [A] When the dimmer switch is on low beam.
[B] When dimmer switch is on high beam.

Headlight:

Tester (+) lead → Green ① or Yellow ② lead

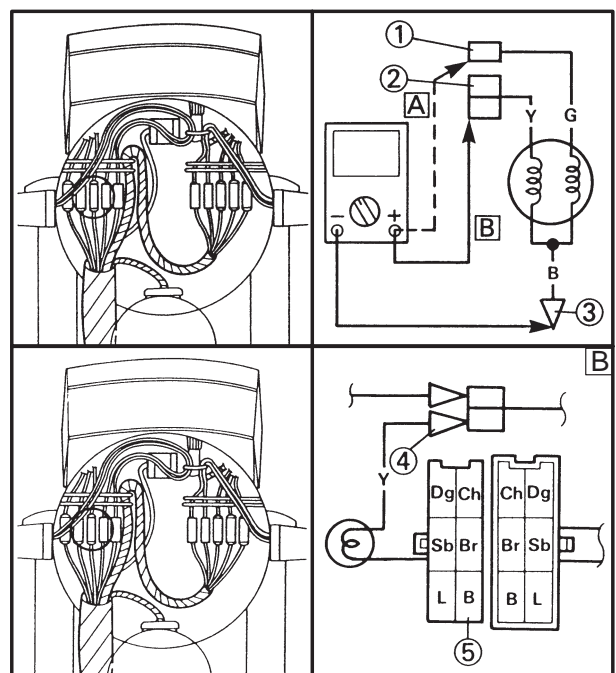
Tester negative (-) lead → Black ③ lead

High beam indicator light:

Tester (+) lead → Yellow ④ lead

Tester (-) lead → Black ⑤ lead

*





*

- Turn the main switch to on position.
- Turn the lights switch to on position.
- Turn the dimmer switch to low beam or high beam.
- Check for voltage (12 V) on the lead at bulb socket connectors.

OUT OF SPECIFICATION

The wiring circuit from the main switch to bulb socket connector is faulty. Repair.

MEETS SPECIFICATION

This circuit is not faulty.

SR805021

2. If the meter light fails to come on.

1. Bulb and bulb socket

Refer to "SWITCH INSPECTION" section.

NO CONTINUITY

Replace the bulb and/or bulb socket.

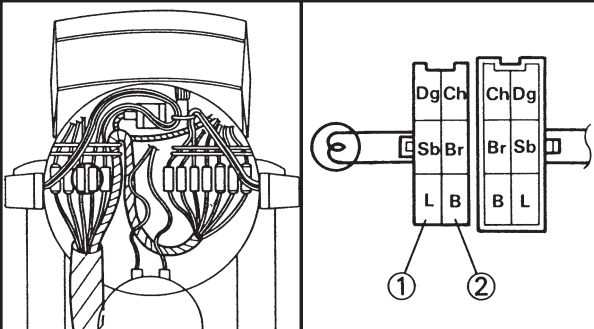
CONTINUITY

2. Voltage

- Connect the pocket tester (DC20V) to the bulb socket coupler.

Tester (+) lead →
Blue terminal ①

Tester (-) lead →
Black terminal ②



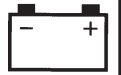
- Turn the main switch to on.
- Turn the lights switch to on position.
- Turn the dimmer switch to low beam or high beam.
- Check the voltage (12 V) of the leads on the bulb socket connector.

OUT OF SPECIFICATION

The wiring circuit from main switch to bulb socket is faulty. Repair.

MEETS SPECIFICATION

This circuit is not faulty.



YP805022

3. The taillight fails to come on.

1. Bulb and bulb socket
Refer to "SWITCH INSPECTION" section.

CONTINUITY

2. Voltage

✱Connect the pocket tester (DC20V) to the bulb socket connector.

Tester (+) lead →
Blue terminal ①

Tester (-) lead →
Black terminal ②

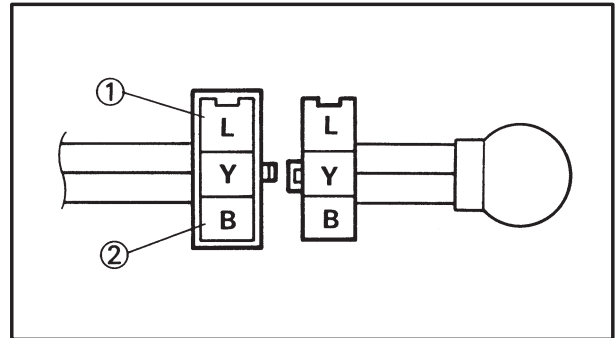
✱Turn the main switch to on position.
✱Turn the lights switch to on position.
✱Turn the dimmer switch to low beam or high beam.
✱Check the voltage (12 V) on the bulb socket connector.

MEETS SPECIFICATION

This circuit is not faulty.

NO CONTINUITY

Replace the bulb and/or bulb socket.



OUT OF SPECIFICATION

The wiring circuit from main switch to bulb connector is faulty. Repair.

SR*****

4. The auxiliary light fails to come on.

1. Bulb and bulb socket
Refer to "SWITCH INSPECTION" section.

CONTINUITY

2. Voltage

✱Connect the pocket tester (DC20V) to the bulb socket connector.

Tester (+) lead →
Blue/Red terminal ①

Tester (-) lead →
Black terminal ②

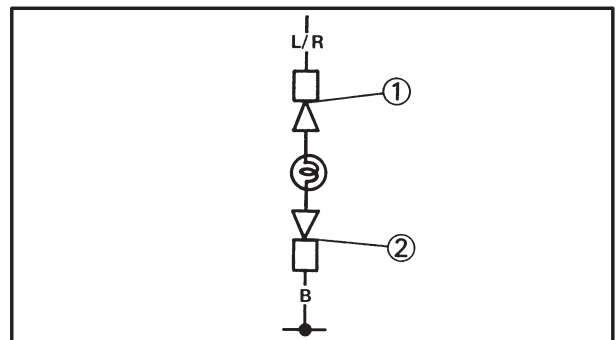
✱Turn the main switch to on position.
✱Turn the lights switch to on position.
✱Turn the dimmer switch to low beam or high beam.
✱Check the voltage (12 V) on the bulb socket connector.

MEETS SPECIFICATION

This circuit is not faulty.

NO CONTINUITY

Replace the bulb and/or bulb socket.



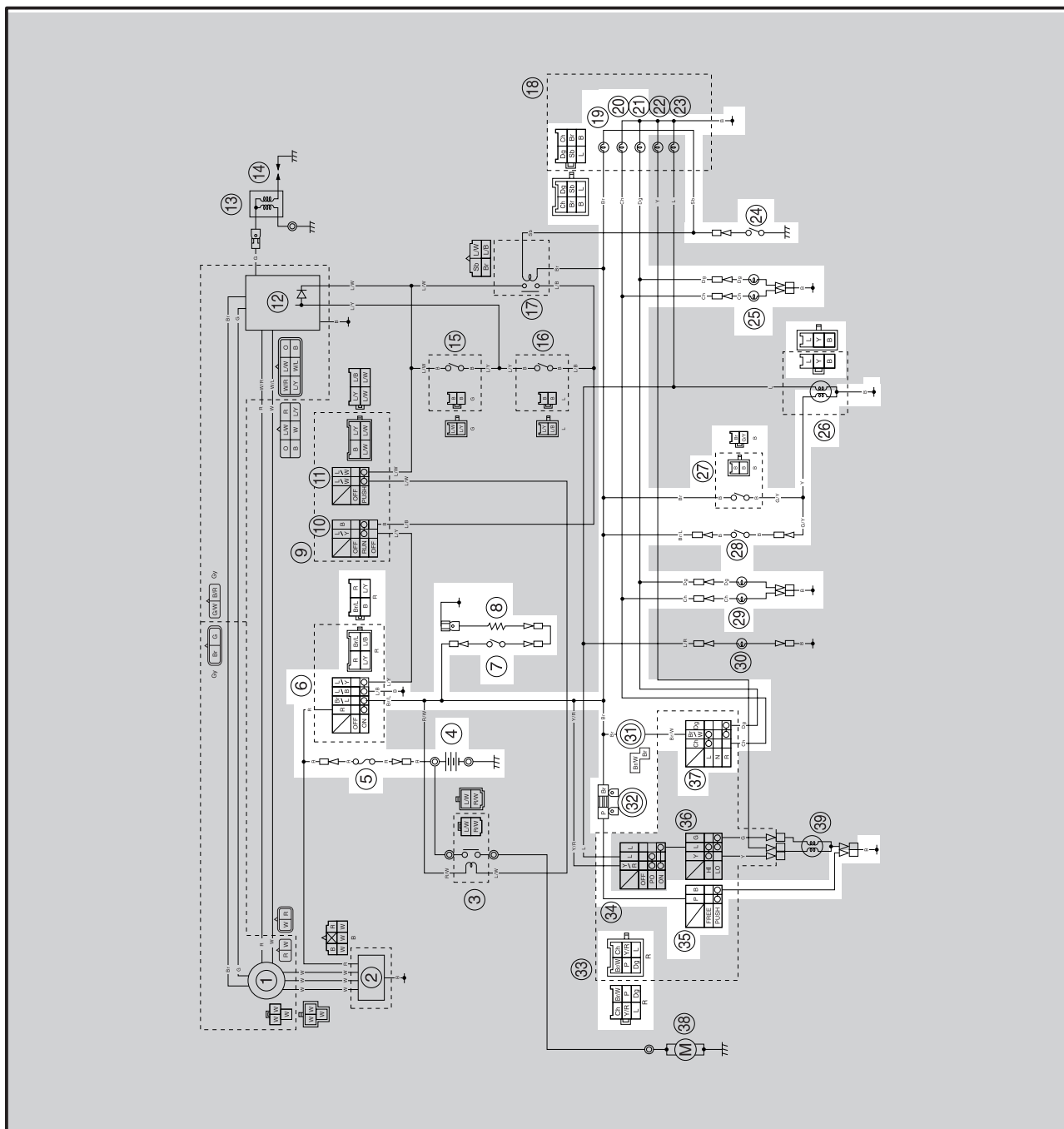
OUT OF SPECIFICATION

The wiring circuit from main switch to bulb connector is faulty. Repair.



EB806000

SIGNAL SYSTEM CIRCUIT DIAGRAM



- | | |
|---------------------------------|-------------------------|
| ④ Battery | ②⑧ Rear brake switch |
| ⑤ Fuse | ②⑨ Front flasher lights |
| ⑥ Main switch | ③① Flasher relay |
| ⑦ Thermo switch | ③② Horn |
| ⑧ Heater unit | ③⑤ Horn switch |
| ①⑨ Neutral indicator light | ③⑦ Turn switch |
| ②① Turn indicator light (left) | |
| ②② Turn indicator light (right) | |
| ②④ Neutral switch | |
| ②⑤ Rear flasher lights | |
| ②⑥ Tail/Brake light | |
| ②⑦ Front brake switch | |



YP806010

TROUBLESHOOTING

IF THE FLASHER LIGHT, BRAKE LIGHT AND/OR INDICATOR LIGHT FAIL TO COME ON.
IF THE HORN FAILS TO SOUND.

Procedure

Check:

- | | |
|------------|---|
| 1. Fuse | 3. Main switch |
| 2. Battery | 4. Wiring connection (entire signal system) |

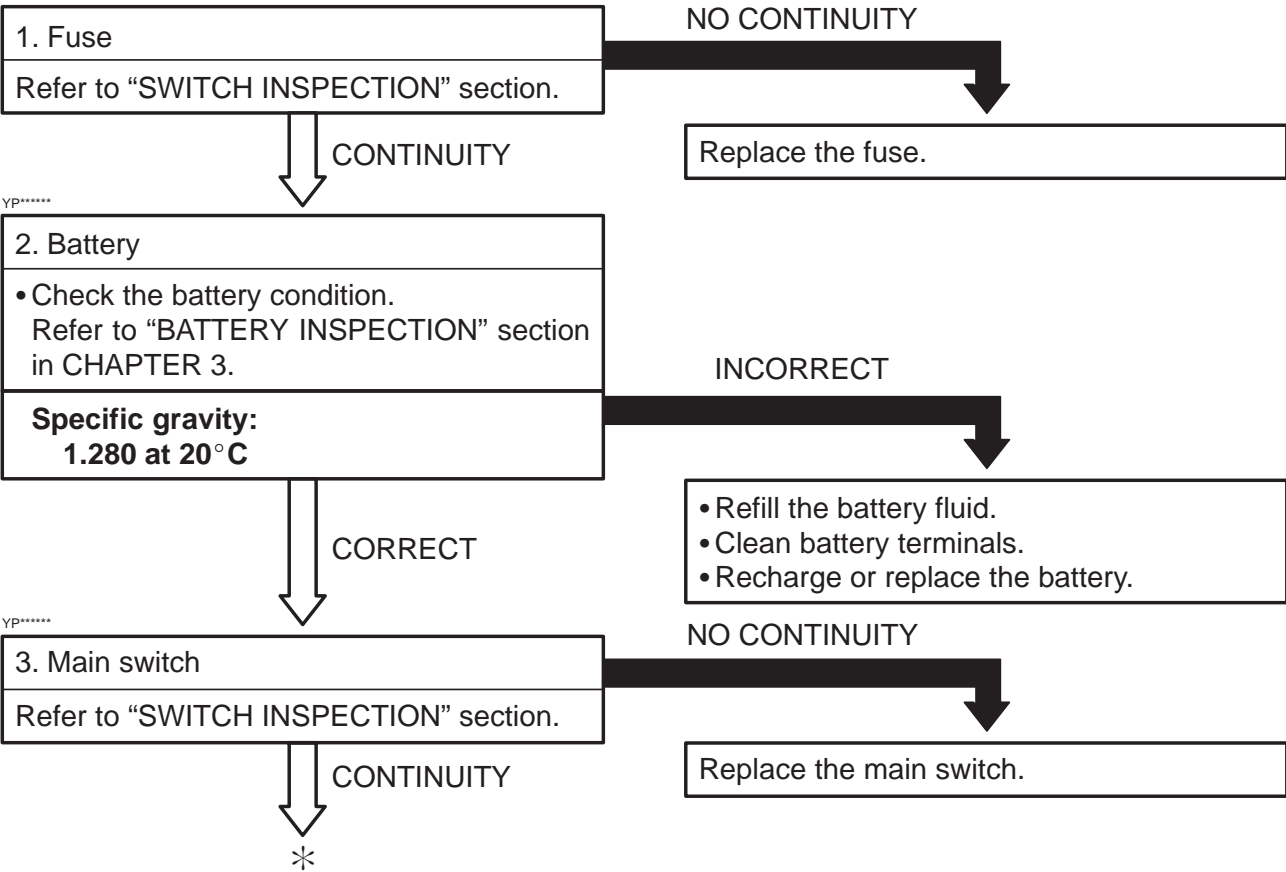
NOTE:

- Remove the following parts before troubleshooting.
 - 1) Headlight unit
 - 2) Side cover (left and right)
- Use the special tools in the troubleshooting section.



Pocket tester:
90890-03112

YP*****





YP*****

4. Wireharness

- Check the connections of the entire signal system.
Refer to "CIRCUIT SYSTEM WIRING DIAGRAM" section.

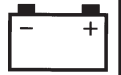
POOR CONNECTION



CORRECT

Correct.

Check condition of each of the signal system's circuits.
Refer to "SIGNAL SYSTEM CHECK" section.



YP806020

SIGNAL SYSTEM CHECK

1. If the horn fails to sound.

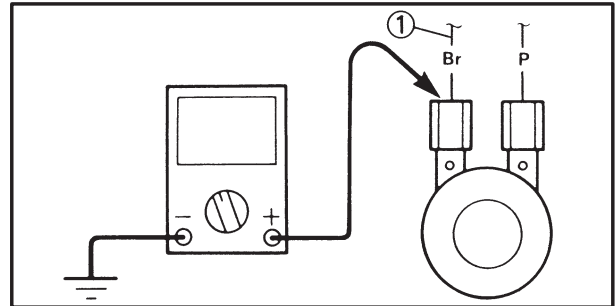
1. Horn switch
Refer to "SWITCH INSPECTION" section.

NO CONTINUITY

Replace the left handlebar switch (left).

CONTINUITY

2. Voltage
✧ Connect the pocket tester (DC20V) to the horn lead.
Tester (+) lead → Brown terminal ① Tester (-) lead → Frame ground
✧ Turn the main switch to on. ✧ Check for voltage (12V) on the "Brown" lead at the horn terminal.

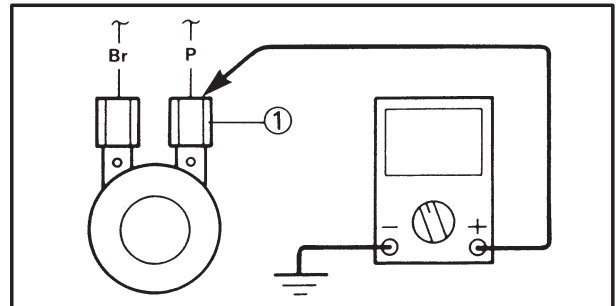


OUT OF SPECIFICATION

The wiring circuit from the main switch to the horn is faulty. Repair.

MEETS SPECIFICATION

3. Horn
✧ Connect the pocket tester (DC20V) to the horn at the "Pink" terminal.
Tester (+) lead → Pink ① terminal Tester (-) lead → Frame ground
✧ Turn the main switch to on. ✧ Check for voltage (12V) on the "Pink" lead to frame ground.



OUT OF SPECIFICATION

Replace the horn.

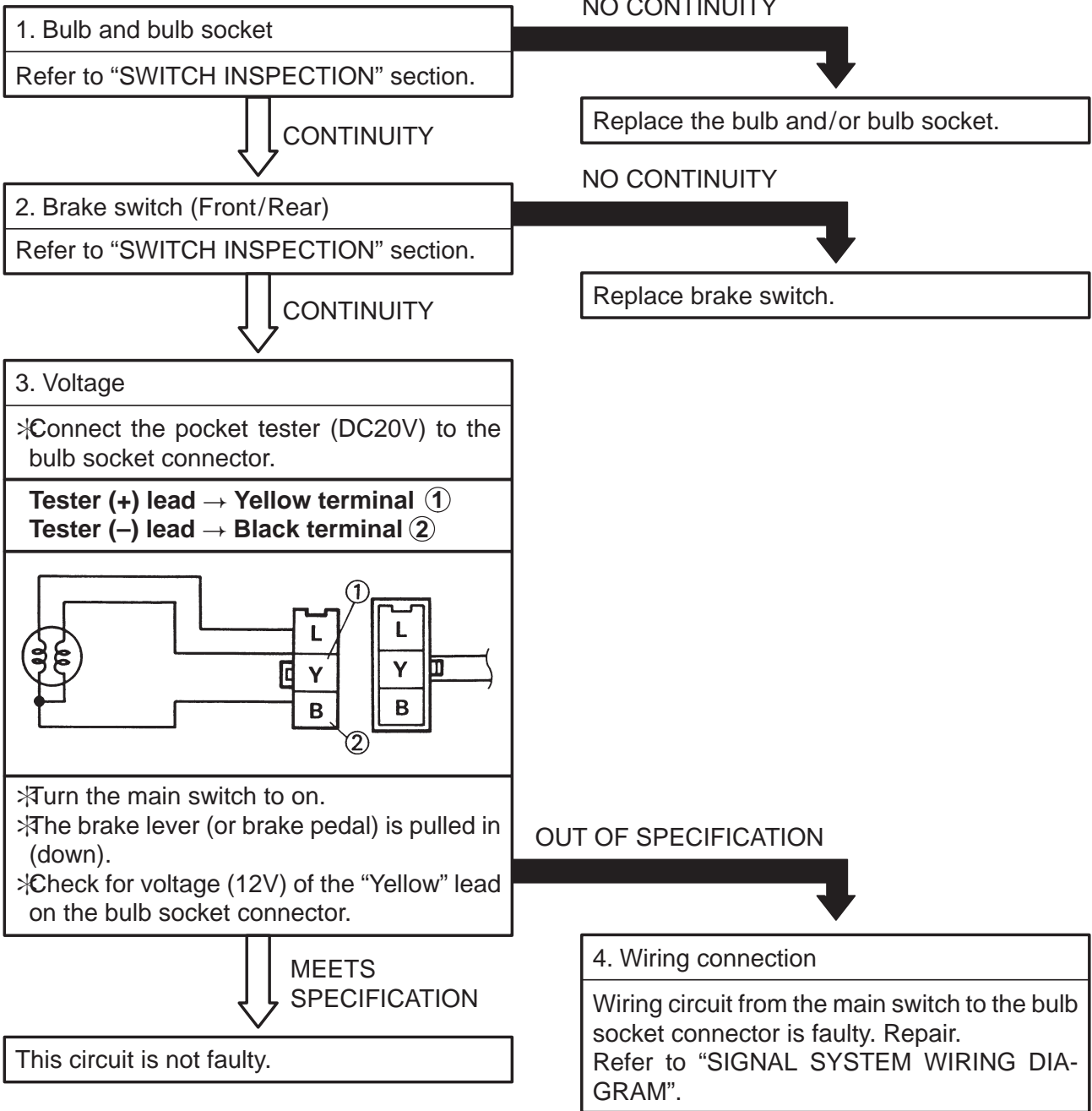
MEETS SPECIFICATION

Adjust or replace horn.



YP806022

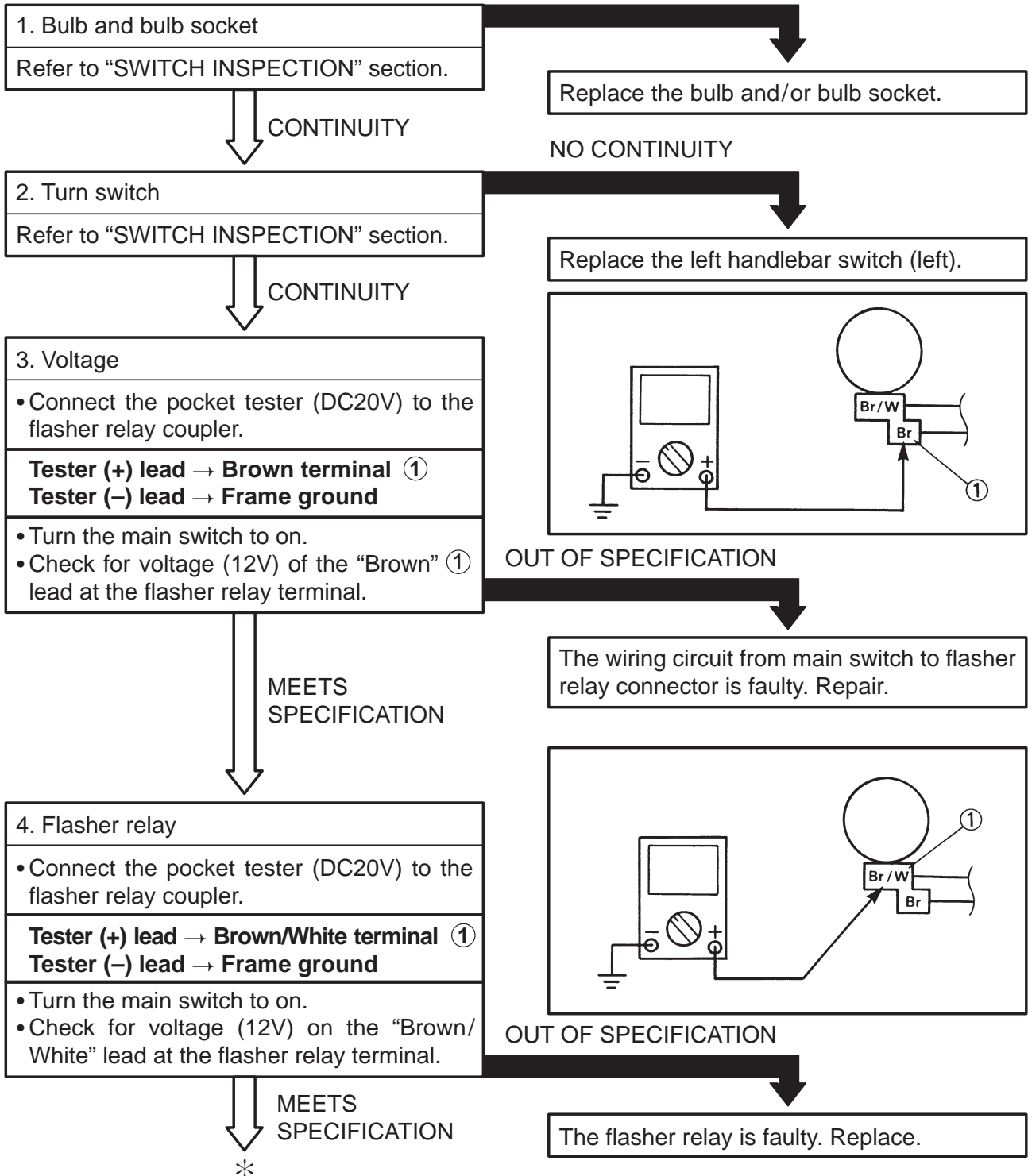
2. If the brake light fails to come on:





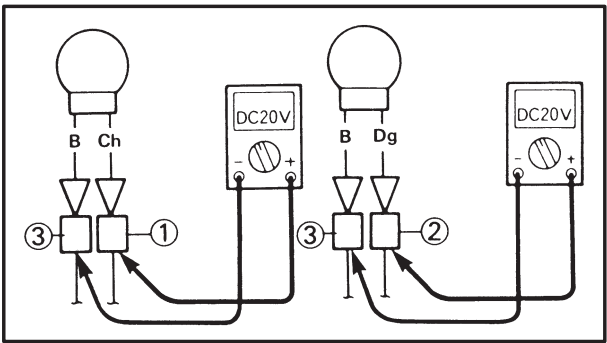
YP806023

3. If the flasher light and/or turn indicator light fails to blink.





5. Voltage
• Connect the pocket tester (DC20V) to the bulb socket connector.
At flasher light (left) Tester (+) lead → Chocolate lead ① Tester (-) lead → Black terminal ③
At flasher light (right) Tester (+) lead → Dark green lead ② Tester (-) lead → Black terminal ③
• Turn the main switch to on. • Turn the turn switch to left or right. • Check for voltage (12V) on the “Chocolate” lead and “Dark green” at the flasher light terminal.



OUT OF SPECIFICATION



MEETS
SPECIFICATION

This circuit is not faulty.

Wiring connection
Wiring circuit from the turn switch to bulb socket connector is fault. Repair. Refer to “CIRCUIT DIAGRAM”.

SR806027

4. If the neutral indicator lights fails to operate.

1. Bulb and bulb socket
Refer to “SWITCH INSPECTION” section.



CONTINUITY

2. Neutral switch
Refer to “SWITCH INSPECTION” section.



CONTINUITY



NO CONTINUITY

Replace the bulb and/or bulb socket.

NO CONTINUITY

Replace the left neutral switch.



3. Voltage

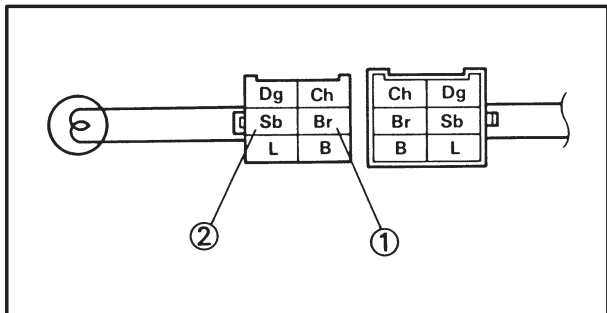
- Connect the pocket tester (DC20V) to the fuel gauge coupler.

Tester (+) lead →

Brown terminal ①

Tester (-) lead →

Sky blue terminal ②



- Turn the main switch to on position.
- Select the gear position in neutral.
- Check for voltage (12V) of the “Sky blue” lead on the neutral switch.

OUT OF SPECIFICATION

MEETS
SPECIFICATION

This circuit is not faulty.

Check the connection of the entire signal system.
Refer to “CIRCUIT DIAGRAM”.

SR*****

5. If the carburetor heater fails to operate.

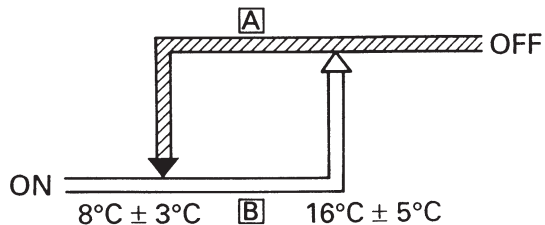
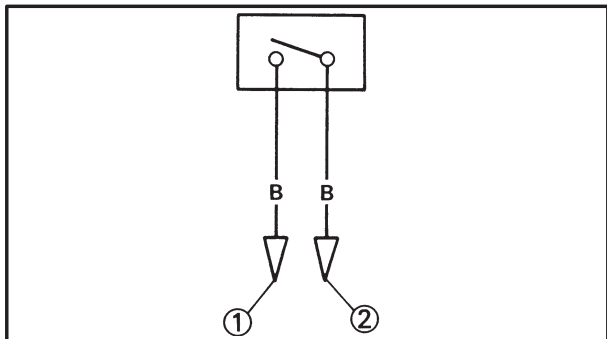
1. Thermo switch

- Disconnect the thermo switch connector from the wireharness.
- Connect the pocket tester ($\Omega \times 1$) to the thermo switch lead.

Tester (+) lead → **Black terminal ①**

Tester (-) lead → **Black terminal ②**

- Check the Terminal 1 and 3 for continuity.



OUT OF SPECIFICATION



A COOL DOWN

B HEAT UP

MEETS
SPECIFICATION

Replace the thermo switch.





2. Heater unit resistance

- Remove the heater unit from the carburetor.
- Connect the pocket tester ($\Omega \times 1$) to the heater unit.

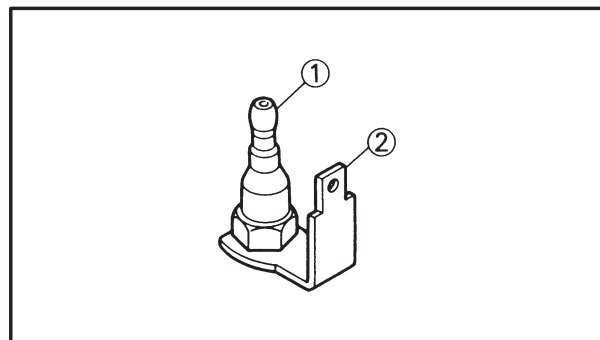
Tester (+) lead → Terminal ①

Tester (–) lead → Terminal ②

- Check the heater unit for specified resistance.



Heater unit resistance:
6 ~ 10 Ω (20°C)



OUT OF SPECIFICATION

MEETS
SPECIFICATION

Replace the heater unit.

3. Wiring connection

- Check the connections of the entire signal system.
Refer to “WIRING DIAGRAM”.

CHAPTER 8. TROUBLE SHOOTING

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TROUBLESHOOTING

NOTE:

The following troubleshooting does not cover all the possible causes of trouble. It should be helpful, however, as a guide to troubleshooting. Refer to the relative procedure in this manual for inspection, adjustment and replacement of parts.

STARTING FAILURE/HARD STARTING

FUEL SYSTEM

Fuel tank

- *Empty
- *Clogged fuel tank cap breather hole
- *Deteriorated fuel or fuel containing water or foreign material

Fuel cock

- *Clogged fuel hose
- *Clogged fuel cock

Carburetor

- *Deteriorated fuel or fuel containing water or foreign material
- *Clogged pilot jet
- *Clogged air passage
- *Improperly set pilot screw
- *Clogged pilot air passage
- *Improperly sealed valve seat
- *Improperly adjusted fuel level
- *Clogged starter jet
- *Damaged carburetor joint
- *Improperly tightened carburetor joint clamp hose
- *Starter plunger malfunction
- *Clogged emulsion (heated water) tube
- *Sucked-in air

Air filter

- *Clogged air filter element
- *Improper air filter setting

COMPRESSION SYSTEM

Cylinder and cylinder head

- *Loose spark plug
- *Loose cylinder head
- *Broken cylinder head gasket
- *Broken cylinder gasket
- *Worn, damaged or seized cylinder

Piston and piston ring

- *Worn piston
- *Worn, fatigued or broken piston ring
- *Seized piston ring
- *Seized or damaged piston

Valve system

- *Improperly adjusted valve clearance
- *Improperly sealed valve
- *Improperly contacted valve and valve seat
- *Improper valve timing
- *Broken valve spring
- *Seized valve

POOR IDLE SPEED PERFORMANCE

TRBL
SHTG



IGNITION SYSTEM

Battery

- *Improperly charged battery
- *Faulty battery

Fuse

- *Burnt out, improper connection

Spark plug

- *Improper plug gap
- *Worn electrodes
- *Wire between terminals broken
- *Improper heat range
- *Faulty spark plug cap

Ignition coil

- *Broken or shorted primary/secondary coil
- *Faulty high tension cord
- *Broken ignition coil body

Ignition system

- *Faulty C.D.I. unit
- *Faulty pick up coil
- *Broken magneto woodruff key

Switch

- *Faulty main switch
- *Faulty "ENGINE STOP" switch
- *Faulty front and/or rear brake switch
- *Faulty sidestand switch

Wiring

- *Loose battery terminal
- *Loose coupler connection
- *Improperly grounded
- *Broken wireharness

SR901000

POOR IDLE SPEED PERFORMANCE

POOR IDLE SPEED PERFORMANCE

Carburetor

- *Improperly returned starter plunger
- *Loose or clogged pilot jet
- *Damaged carburetor joint
- *Improperly tightened carburetor joint clamp hose
- *Improperly adjusted idle speed (Pilot screw), (Throttle stop screw)
- *Improperly adjusted throttle cable
- *Flooded carburetor

Air filter

- *Clogged air filter element

Ignition system

- *Faulty spark plug
- *Faulty high tension cord
- *Faulty C.D.I. unit
- *Faulty pick up coil
- *Faulty ignition coil

Valve system

- *Improperly adjusted valve clearance

EB902000

POOR MEDIUM AND HIGH SPEED PERFORMANCE

POOR MEDIUM AND HIGH SPEED PERFORMANCE

Refer to "STARTING FAILURE/HARD STARTING" section. (Fuel system, electrical system, compression system and valve train)

Carburetor

- *Improperly adjusted fuel level
- *Clogged main nozzle
- *Clogged or loose pilot jet

Air filter

- *Clogged air filter element

SR*****

POOR SPEED PERFORMANCE

POOR SPEED PERFORMANCE

Ignition system

- *Dirty spark plug
- *Improper heat range
- *Faulty C.D.I. unit
- *Faulty pick up coil

Fuel system

- *Clogged fuel tank cap breather hole
- *Clogged air cleaner element
- *Clogged jet
- *Improperly adjusted fuel level

Compression system

- *Worn cylinder
- *Worn or seized piston ring
- *Cylinder head gasket broken
- *Cylinder gasket broken
- *Carbon deposit build-up
- *Improperly adjusted valve clearance
- *Improperly contacted valve and valve seat
- *Faulty valve timing

Clutch

- *Refer to "CLUTCH SLIPPING/Dragging" section

Engine oil

- *Improper oil level (low or over oil level)
- *Improper quality (Low oil viscosity)
- *Deterioration
- *Clogged oil passage

Brakes

- *Dragging brake

EB904000

CLUTCH SLIPPING/Dragging

CLUTCH SLIPPING

Clutch

- *Improperly adjusted clutch cable
- *Loose clutch spring
- *Fatigued clutch spring
- *Worn friction plate/clutch plate
- *Incorrectly assembled clutch

Engine oil

- *Improper oil level
- *Improper quality/(low viscosity)
- *Deterioration

CLUTCH Dragging

Clutch

- *Warped pressure plate
- *Unevenly tensioned clutch spring
- *Bent push rod
- *Broken clutch boss
- *Burnt primary driven gear bushing
- *Bent clutch plate
- *Swollen friction plate
- *Match marks not aligned

Engine oil

- *Improper oil level
- *Improper quality/(high viscosity)
- *Deterioration

EB903000

FAULTY GEAR SHIFTING

HARD SHIFTING

Refer to "CLUTCH Dragging".

SHIFT PEDAL DOES NOT MOVE

Shift shaft

- *Improperly adjusted shift rod
- *Bent shift shaft

Shift cam, shift fork

- *Groove jammed with impurities
- *Seized shift fork
- *Bent shift fork guide bar

Transmission

- *Seized transmission gear
- *Jammed impurities
- *Incorrectly assembled transmission

JUMP-OUT GEAR

Shift shaft

- *Improperly adjusted shift lever position
- *Improperly returned stopper lever

Shift fork

- *Worn shift fork

Shift cam

- *Improper thrust play
- *Worn shift cam groove

Transmission

- *Worn gear dog

SR905000

OVER HEATING OR OVER-COOL- ING

OVER HEATING

Ignition system

- *Improper spark plug gap
- *Improper spark plug heat range
- *Faulty C.D.I. unit

Fuel system

- *Improper carburetor setting
- *Improper fuel level adjustment
- *Clogged air filter element

Compression system

- *Heavy carbon deposit build-up
- *Improperly adjusted valve timing
- *Improperly adjusted valve clearance

Engine oil

- *Incorrect engine oil level
- *Improper engine oil quality (High viscosity)
- *Low engine oil quality

Brakes

- *Dragging brake

SR906001

FAULTY BRAKE

POOR BRAKING EFFECT

Front brake

- *Worn brake pad
- *Worn brake disc
- *Air in brake fluid
- *Leaking brake fluid
- *Faulty master cylinder kit
- *Faulty caliper seal kit
- *Loose union bolt
- *Broken brake hose
- *Oily or greasy brake pad
- *Oily or greasy brake disc

Rear brake

- *Improper brake pedal adjustment
- *Worn brake shoe
- *Improper brake shoe contact
- *Worn camshaft
- *Worn brake drum
- *Mud or water into brake drum inside
- *Oily or greasy brake lining
- *Faulty brake cable
- *Broken or fatigued tension spring
- *Faulty camshaft, cam lever

SR907000

FRONT FORK MALFUNCTION OIL LEAKAGE

- *Bent, damaged or rusty inner tube
- *Damaged or cracked outer tube
- *Damaged oil seal lip
- *Loose hexagon bolt
- *Damaged cap bolt O-ring
- *Improperly installed oil seal

MALFUNCTION

- *Bent inner tube
- *Deformed outer tube
- *Damaged fork spring
- *Bent cylinder complete
- *Improper oil viscosity (High viscosity)
- *Improper oil level
- *Worn or damaged slide metal

SR908000

INSTABLE HANDLING INSTABLE HANDLING

Handlebars

- *Improperly installed or bent
- *Loose handlebar tightening bolt

Steering

- *Improperly installed handlebar crown
- *Loose or overtightening steering nut
- *Bent under bracket
- *Improperly installed steering shaft (improperly tightened ring nut)
- *Damaged bearing or ball race

Front forks

- *Uneven oil levels on both sides
- *Uneven spring tension
- *Broken front fork spring
- *Fatigued front fork spring
- *Twisted front forks

Wheels

- *Incorrect wheel balance
- *Loose spooks
- *Deformed wheel rim
- *Unevenly worn tires
- *Incorrect tire pressure
- *Loose bearing
- *Bent or loose wheel axle
- *Excessive wheel runout

Frame

- *Twisted
- *Improperly installed bearing race
- *Damaged head pipe bearings

Rear arm

- *Faulty bearings
- *Worm or damaged
- *Faulty bushing
- *Bent rear arm

Rear shock absorber

- *Fatigued spring
- *Improperly adjusted spring preload
- *Oil leakage

Drive chain

- *Improperly adjusted chain line

STARTER MOTOR DOES NOT OPERATE

TRBL
SHTG



SR*****

STARTER MOTOR DOES NOT OPERATE

STARTER MOTOR DOES NOT OPERATE

Battery

- *Insufficient battery capacity
- *Faulty battery

Fuse

- *Burnt out, improper connection

Switch

- *Faulty main switch
- *Faulty starter switch
- *Faulty clutch switch
- *Faulty neutral switch
- *Faulty sidestand switch
- *Faulty starting circuit cut-off relay
- *Faulty starter relay

Wireharness

- *Loose battery terminal
- *Loosely connected coupler
- *Improperly grounded
- *Broken wireharness

Starter motor

- *Worn brush
- *Faulty commutator
- *Broken armature coil

Engine

- *Faulty starter clutch
- *Seized engine

YP909000

FAULTY SIGNAL AND LIGHTING SYSTEM

HEADLIGHT DARK

- *Improper bulb
- *Too many electric accessories
- *Hard charging
- *Faulty rectifier/regulator
- *Faulty battery
- *Improperly connected coupler, connector, wireharness
- *Improperly grounded
- *Faulty main switch or Lights (dimmer) switch
- *Bulb life expired

BULB BURNT OUT

- *Improper bulb
- *Faulty battery
- *Faulty rectifier/regulator
- *Improperly grounded
- *Improperly mounting light unit
- *Bulb life expired

FLASHER DOES NOT BLINK

- *Improperly grounded
- *Insufficient battery capacity
- *Faulty fuse
- *Faulty turn switch
- *Faulty flasher relay
- *Broken wireharness, incorrect coupler connection
- *Bulb burnt out

FLASHER KEEPS ON

- *Faulty flasher relay
- *Insufficient battery capacity (nearly discharged)
- *Bulb burnt out (front or rear)

FLASHER BLINKS SLOWER

- *Faulty flasher relay
- *Insufficient battery capacity (nearly discharged)
- *Improper bulb
- *Faulty main and/or turn switch

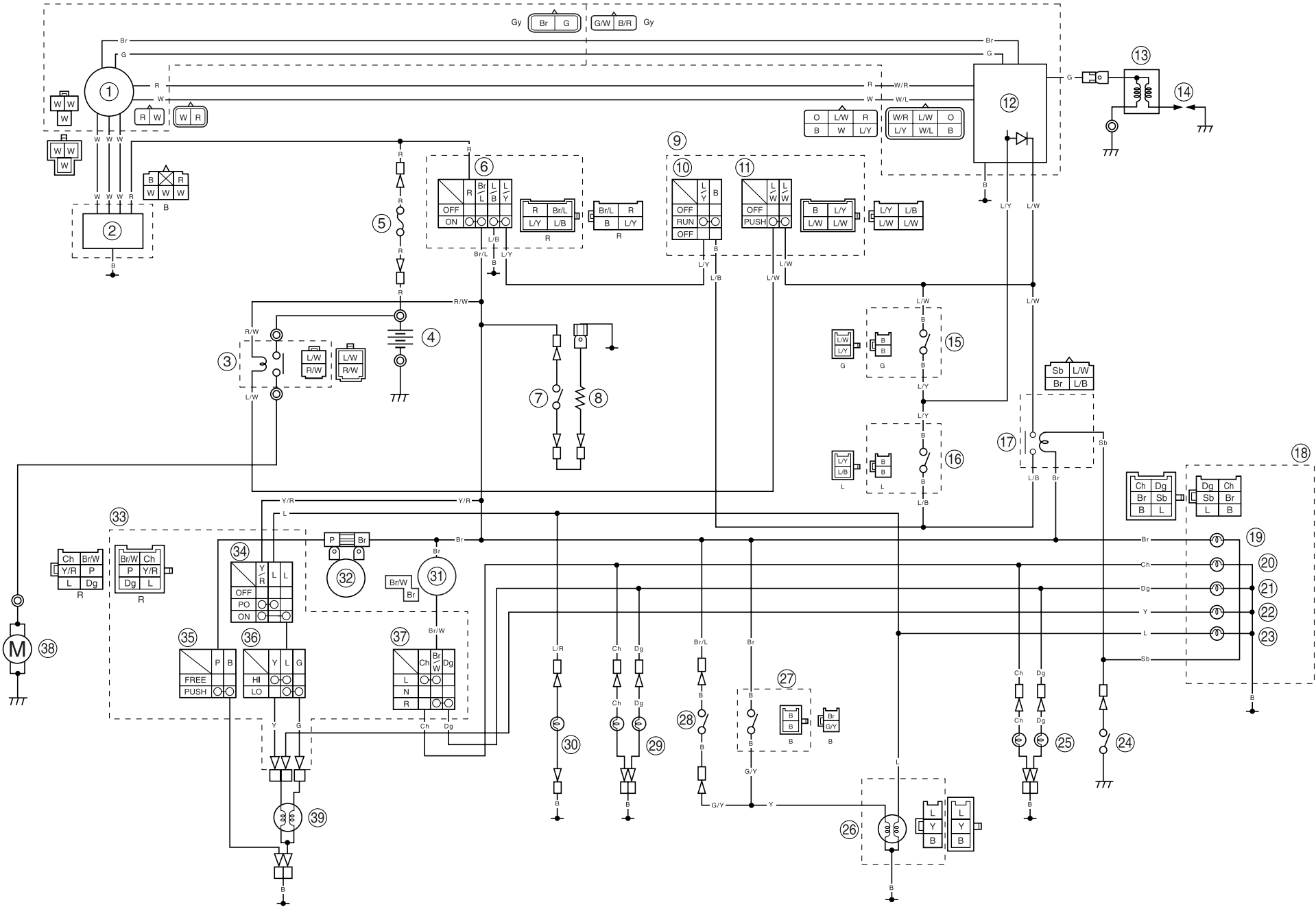
FLASHER BLINKS QUICKER

- *Improper bulb
- *Faulty flasher relay

HORN DOES NOT SOUND

- *Faulty battery
- *Faulty fuse
- *Faulty main and/or horn switch
- *Improper horn adjustment
- *Faulty horn (burnt coil, connector)
- *Broken wireharness

SR125 '97 WIRING DIAGRAM



- ① C.D.I. magneto
- ② Rectifier/Regulator
- ③ Starter relay
- ④ Battery
- ⑤ Fuse
- ⑥ Main switch
- ⑦ Thermo switch
- ⑧ Heater unit
- ⑨ Handlebar switches (right)
- ⑩ Engine stop switch
- ⑪ Start switch
- ⑫ C.D.I. unit
- ⑬ Ignition coil
- ⑭ Spark plug
- ⑮ Clutch switch
- ⑯ Sidestand switch
- ⑰ Neutral relay
- ⑱ Speedometer
- ⑲ Neutral indicator light
- ⑳ Turn indicator light (left)
- ㉑ Turn indicator light (right)
- ㉒ Hi-beam indicator light
- ㉓ Meter light
- ㉔ Neutral switch
- ㉕ Rear flasher lights
- ㉖ Tail/Brake light
- ㉗ Front brake switch
- ㉘ Rear brake switch
- ㉙ Front flasher lights
- ㉚ Auxilialy light
- ㉛ Flasher relay
- ㉜ Horn
- ㉝ Handlebar switches (left)
- ㉞ Lights switch
- ㉟ Horn switch
- ㊱ Dimmer switch
- ㊲ Turn switch
- ㊳ Starting motor
- ㊴ Headlight

COLOR CODE

B Black	Sb Sky blue	G/Y Green/Yellow	W/L White/Blue
Br Brown	P Pink	L/B Blue/Black	W/R White/Red
Ch Chocolate	R Red	L/R Blue/Red	
Dg Dark green	Y Yellow	L/W Blue/White	
G Green	W White	L/Y Blue/Yellow	
L Blue	Br/L Brown/Blue	Y/R Yellow/Red	
O Orange	Br/W Brown/White	R/W Red/White	